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11 – 13 November 2019, Hamburg, Germany

Hosted by Germany and

Co-organised with the Netherlands and Pew Charitable Trusts

Towards a standardised approach to Regional Environmental Management Plans in the Area

Workshop Report

The participants of the workshop. Group photo taken 11 November 2019, © Hans-Peter Damian

Towards a standardised approach to Regional Environmental Management Plans in the Area - International workshop hosted by Germany, supported by IASS, and co-organised with the Netherlands and the Pew Charitable Trusts, 11-13 November 2019, Hamburg, Germany. Workshop Report.

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Suggested quote: Christiansen, S., Ginzky, H., Singh, P., 2020. Towards a standardised approach to Regional Environmental Management Plans in the Area - International Workshop, 11-13 November 2019, Hamburg, Germany. Workshop Report.

Executive Summary

Background information

1. Regional Environmental Management Plans, REMPs, are seen as an essential tool to ensure an effective protection of the marine environment according to Article 145 UNCLOS. Hence, REMPs could provide region-specific information to assist the ISA decision-making process on activities in the respective areas. REMPs could inter alia entail region-specific objectives taking into account of the carrying capacity of the region. Cumulative effects and conflicts with other legitimate uses could be considered. REMPs furthermore provide a long-term planning reliability and a level playing field for contractors, in particular when shifting from exploration to exploitation.
2. There is one precedent of a region-specific plan, namely the Environmental Management Plan for the Clarion-Clipperton Zone (EMP-CCZ) established in 2012 (ISBA/18/C/22). Furthermore, the 'Preliminary strategy for the development of REMPs for the Area' of 2018 (ISBA/24/C/3) specifically identifies the following priority areas for the development of REMPs on a preliminary basis: the Mid-Atlantic Ridge, the Indian Ocean triple junction ridge and nodule-bearing province, and the North-west Pacific and South Atlantic for seamounts. Since then, several workshops have been held and further workshops are planned.
3. The strategic plan adopted by the Assembly in 2018 (ISBA /24/A/CRP.3) determines REMPs as an essential means to protect the marine environment. The Draft Exploitation Regulations – in its current version – require the Environmental Impact Statement (Draft Regulation 47), Environmental Management and Monitoring Plan (Draft Regulation 47) and Closure Plan (Annex VIII) to be in accordance with the respective REMP. In addition, in November 2019 the Secretariat of the ISA published the "Guidance to facilitate the development of Regional Environmental Management Plans".1
4. However, there is not yet a clear legal obligation that a REMP has to be in place before an application for an exploitation activity for the respective area could be approved. Nor is there an obligation that the activity must not contradict the objectives and the management measures of the Regional Environmental Management Plan. Furthermore, neither the Strategic Plan, the Draft Exploitation Regulations nor the "Guidance" of the ISA Secretariat clarify the required contents of REMPs and the procedure for a REMP's development, approval and review.
5. This international workshop entitled "Towards a standardized approach for Regional Environmental Management Plans in the Area", is intended to provide proposals with regard to a "standardized approach" concerning the minimum contents of REMPs as well as concerning the procedures for the development, approval and review of REMPS. Furthermore, it should be discussed how REMPs could be given legal effect. As a basis for the discussion, three documents have been submitted to the participants for consideration which address the three aspects – contents, procedure and legal effect – and which are documented in the Annexes to this report.

[1] https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/remp_guidance_.pdf

Need for a standardised approach

6. Generally, the standardised approach to REMP development was strongly supported by workshop participants, in order to achieve transparency, consistency and acceptance. Such a standardized approach was overwhelmingly seen as necessary both with regard to the minimum contents/requirements of REMPs and with regard to the procedure for the development, approval and review of REMPs.

Minimum contents/requirements of REMPs

7. The workshop document called "Template document" sets out minimum requirements for the content of any REMP. Using a consistent format across the different REMPs should be instrumental to developing the individual plans more transparently, provide for a more reliable and predictable output, and help avoid use conflicts as well as predominance of particular interests.
8. The template starts with two sections setting out the purposes and objectives, and the principles, respectively, which shall be valid for all REMPs in the Area. Section 3 of the template comprises all of the technical and scientific details to be elaborated and agreed for each of the regions. The specific region of application of the plan has to be detailed (3.1), environmental baseline information and all available information on other uses have to be provided (3.2). Section 3.3. addresses the management measures to be developed from the information collected on the regional environment in order to translate the mandate of Article 145 of UNCLOS into regional action.
9. As such, the REMPs are a precautionary action implementing the ecosystem approach to management of human activities to ensure à priori that individual and cumulative environmental effects of the activities enabled under a new framework will not undermine the achievement of the pre-agreed overarching and conservation goals, namely Article 145 of UNCLOS, 'ensure effective protection for the marine environment from harmful effects which may arise from such activities'. Therefore, the means for transparent, accountable and informed decision-making have to be created through:
    - Establishing a broad knowledge base, including stakeholder knowledge (Template 3.2.1.1-7)
    - Compiling a state-of-the-art Regional Environmental Report including and assessment of past, present and future risks and impacts on biota and ecosystem functions and services (Template 3.2.1.8)
    - Use of the above information to determine uncertainties and gaps, need for further investigation
    - Determination of measures and action, if appropriate.

Recommendations on minimum contents/requirements of REMPs by workshop participants

10. It was recommended that the Template document, setting out the minimum requirements for all REMPs to be developed, should be a stand-alone document and cross-linked to the other documents.
11. Adding an annex on the use of terms was suggested, and it was suggested that glossary of terms and abbreviations relevant to the REMPs-document should be aligned with the

vocabulary used by the ISA (https://www.isa.org.jm/scientific-glossary). Proposals for revising the subtitles and structure of the Template were made.

12. It was suggested to reflect the hierarchy of overarching vision and global goals-regional objectives and targets in the template which leads to renaming of sections 1 and 2.
13. A restructuring of chapter 3.2. and 3.3 would deliver the new chapters
    - Environmental description (current 3.2.1.1-6)
    - Regional "Risk" Assessment (current 3.2.1.7)
    - Assessment of effective protection/financial outcome (3.2.1.8.) – should stand alone
    - Regional objectives and targets (current 3.3.1)
    - Management measures (current 3.3)
14. The following suggestions were made in relation to the current "Purpose and Objective" section of the Template (Section 1):
    - Reorganise and shorten the "objectives"- avoiding a mixture of inputs and outputs, means and ends.
    - Add wording to clarify that the objectives are listed as applying to the specific region.
    - Add mitigation and reduction of impacts; restoration; maintenance of ecological resilience (including ecosystem structure, function and services, recovery).
    - Clarify how Goals and Principles interact and influence the Plan.
    - Cumulative impacts should expressly include effects of climate change – or consider climate change as a stand-alone objective (e.g. avoidance exacerbation of ecosystem vulnerability to climate change)?
    - Add transparent decision-making and public participation, identification of gaps in knowledge, effective monitoring and capacity development.
15. Comments on "Principles" (Section 2) included:
    - Frame it differently: implement the ecosystem approach to management - this includes all the principles set out in the document.
    - Add 'best available science' or 'best environmental information and evidence' to the list of principles.
    - Principle of 'transparency' could be expanded upon, in particular to include expressly the importance of stakeholder participation.
16. Comments on the Technical and Scientific details (Section 3) were:
    - Definition of the specific REMP region (3.1, map): biogeographic regions are important (the REMP region should build from seafloor biogeography upward into water column provinces, i.e. a 3D map).
    - Incorporate political boundaries (e.g., EEZs; recognizing that boundary types may influence how activities are managed (e.g., mining plumes cannot be allowed to extend into EEZs). Take into consideration contract areas, and features that may cross biogeographic/oceanographic boundaries.
    - Regional environmental assessment (3.2.) - Supported by a large majority
    - Baseline information (3.2.1.): clarify terms e.g. "Archetypical species", and add information on e.g. underwater munitions, connectivity, including migratory connectivity, sectoral spatial management measures (e.g. fishery closures, 'vulnerable marine ecosystems').

- Management measures (3.3.) should be designed independently of current exploration contracts.
- Region specific goals2 (3.3.1) are needed (e.g. protect particular fish resources; protect specific cultural heritage).
- There was discussion as to whether Preservation Reference Zones and Impact Reference Zones (within contract areas) should be addressed within a REMP, or whether parameters for their design would be more appropriately housed in in "standard and guidelines". The answer may depend on the extent to which the design of such zones will be different from region to region.
- Seasonal and temporal restrictions (3.3.4) should be defined based on water bodies, current behaviour, daily/nightly control
- Restrictions on specific communities (3.3.5) needs to be broader (including habitats, areas of scientific value/interest, areas of cultural, social importance).
- Measures to deal with potential use conflicts/cumulative effects (3.4) should also address all stressors inter alia climate change, temporal and spatial scales and dynamics for stressors, and stress from outside the region of a REMP.
- REMPs should to be coherent with other management regimes.
- Conscious efforts should be made to deal with data gaps in order to assist the ISA predict cumulative impacts and use conflicts.
- GIS maps are needed to show where we do not have necessary information.
- Strategies for enhancing knowledge (3.5): some participants commented that test mining is needed. It was suggested that the template requires a list of knowledge gaps, and prioritization of a work programme and long term research plan to fill those gaps although the practical constraints on such a programme, including cost and availability of researchers and research assets, were noted.
- Performance metrics (3.6.) were an important inclusion. Suggestions were for: measurable disturbance in core regions of APEIs, the 17 APEI performance metrics outlined in Dunn et al. (2018). Use of indicators (species, environmental variables, etc.) indicative of health of (or impacts to) valued /managed components of region would also be helpful.
- Add "3.7." requiring a Monitoring Plan for the region, and details on how this is to be financed. Workshop participants identified a missing element in the proposed Template: a section which requires a Regional Monitoring Plan, setting out long-term, regular standard sampling and assessment which will allow to improve the long-term knowledge on the shifting baselines of the region, activities within the region and influences on the region. Inclusion of such a monitoring plan will also enable the early alerting of adjacent coastal states and other stakeholders if mining causes problematic emissions (contaminants, sediments), degradation of habitat or transboundary effects. '

[2] Workshop participants recommended that "goals" be re-named "objectives"

Procedure of development, approval and review of REMPs

17. A proposed procedure for the development, approval and review of REMPs is outlined in the workshop document entitled “Procedure Document”.
18. The proposed procedure with respect to the development of REMPs is that the Council should initiate the process by deciding that a REMP is necessary for a particular region. Any member State of the ISA, the LTC, the Secretariat, or Observer member may notify the Council of such a need for its consideration.
19. Once the Council makes a decision that the creation of a REMP is necessary, four options ensue. First, the Council shall direct the LTC to design the REMP with the assistance of the Secretariat. Second, the Council, acting on the recommendation of the LTC, establishes an expert body to design the REMP. Third, the Council, based on direct nominations made by member States, establishes an expert body to design the REMP. Fourth, presupposing that a dedicated ‘Environmental and Scientific Committee’ (or ESC) is deemed necessary for environmental-related matters and established as a subsidiary body to the Council, the Council will entrust the design of the REMP to the ESC.
20. While the first option is the current manner in which REMP development is envisaged (see Secretariat’s Guidance Document), the other three options help ensure that that a dedicated body with environmental expertise takes charge of the REMP development process.
21. A dedicated body should be charged to conduct stakeholder mapping to determine the relevant actors, conduct consultation with third parties, convene workshops and select participants, prepare a draft REMP and receive public comments.
22. Under all options, the Secretariat continues to play an administrative role and facilitates the process by providing the necessary assistance and support.
23. Under the first three options, the LTC retains the power to consider the draft REMP and make an appropriate recommendation to the Council, whereas under the fourth option, this will be the task of the newly created ESC.
24. Once a draft REMP is recommended to the Council, the Council shall, based on the recommendations of the LTC or ESC, determine if the REMP has adhered to the standardized procedure for its development, prior to approving it. It shall then determine if the REMP is ready for adoption.
25. If the Council determines that more work or steps are to be taken, the Council shall revert back to the LTC or ESC, as the case may be. The LTC or ESC may further revert back to the expert body for further attention. This process shall be repeated until the REMP is ready for adoption.
26. The final stage, the review of the REMP, shall also be standardized in order to ensure that each REMP is up-to-date and remains pertinent. This stage should entail two approaches. First, there should be annual reports on the REMPs, whereby new environmental data submitted to contractors as well as new scientific knowledge pertaining to the region is summarized. This step should be conducted by the expert body responsible for the REMP design with the assistance of the Secretariat. Second, each REMP shall be subject to a periodic review, e.g. every five years or earlier if requested by the Council. Early trigger events include the occurrence of significant unexpected harm and issuance of an emergency order, a major change or new discovery in scientific understanding, the relinquishment of areas previously under contract in the region, or an application for a new type of resource in the region.

Recommendations on Procedure of development, approval and review of REMPs by workshop participants

27. An expert committee was considered necessary for the development and the review of REMP. The committee should steer the process, and potentially should also develop the first draft itself. It should act as a neutral science-based body of about 5-7 experts. The following expertise should be represented: Biologist/Ecologist, Geologist, Ocean Geographers, Spatial planning expert, Economist, Lawyer. Whether regional representation is needed, has to be discussed further. Some suggested the expertise should also include relevant traditional knowledge of Indigenous Peoples and Local Communities. Whether contractors representatives should be in the committee was questioned. It was noted that additional funding would be required for such expert committees.
28. The format and standing of the expert committee must be defined. A long-term solution would be to have an overarching "scientific and environmental committee" next to the LTC. This committee would have a supervising function and should establish sub-committees for specific REMPs. Alternatively, for the time being either the LTC or the Council could establish ad-hoc committees for specific REMPs which have to report back to either the LTC or the Council directly. When considering these options, the political implications of the institutional changes required should be taken in to account.
29. The administrative and facilitating role of the Secretariat should be explicitly mentioned in the procedure document.
30. There was a consensus that the Council should initiate the development of REMP as well as approve and finally review REMPs. Some suggested that the Council should also appoint the experts for the committee.
31. Stakeholder involvement was seen as key in order to ensure the high quality of REMPs and to achieve more acceptance. To this end, stakeholder mapping was recommended, and this should include international organizations and that non-Council states should be given particular attention. Furthermore, live-streaming of the envisaged workshops should be considered.
32. One of the key functions of REMP workshops should be information gathering. Another should be the involvement of all interests, perspectives and expertise.
33. A more long-term solution would be a coordination with the BBNJ-process.
34. Concerning the formal consultation procedure, it was questioned whether a 60 day review period once the REMP is uploaded on the Authority website was sufficient, given that any research expedition in the Area involving field experts can exceed 60 days, and that other international bodies only meet once a year or even more seldomly.
35. It should be ensured that it is documented and made publicly available how consultation comments have been addressed.
36. With regard to the review phase, it was widely agreed that a new application for a plan of work (PoW) should only be one of the trigger events if the PoW is for a new resource category in the relevant REMP area.
37. It was commonly stated that data and information availability is key. Contractor data are one source. Scientific papers provide another source, although it was noted that data from contractors and scientific papers can be one and the same in instances where contractors are partnering with the scientific community to perform environmental studies. A need was seen to standardize the data and information gathering and to establish a synthetization scheme

involving both scientists and practitioners. Some noted that the Authority's guidelines already included extensive and detailed environmental data and information requirements, on which a considerable body of work had already been based. The synthetization could be done by the REMP committee. A regional database, which is continuously updated, was also recommended.

38. A cross-evaluation of each REMP against other REMPs, with regard to consistency and compliance to the standards, was suggested.
39. Some suggested that a flow-chart should be included in the procedure document.

Giving REMP legal effects: considerations

40. UNCLOS provides for different types of ISA instruments, such as 'Rules', 'Regulations', 'Procedures', 'Policies', and 'Decisions' (but not 'Plans'). It is important that all stakeholders are clear specifically which type of instrument a REMP is, in legal terms. This status will dictate by what process a REMP can be adopted, whether and upon whom it is binding, and what are the ramifications of non-compliance.
41. The CCZ EMP appears to be a Council Policy, given some degree of binding force by way of a Council Decision. This approach could be followed for future REMPs, but there are disadvantages of spreading the REMP across two separate documents, and giving it force by way of a Council decision that has a short-term outlook only. The CCZ EMP method also focusses on the adoption of a REMP after it has been written, and so does not contain stipulations for required procedure or content in developing or reviewing the REMP. This could lead to inconsistency, inaccuracy, or incompleteness across different REMPs. The CCZ EMP example additionally fails to set clear roles and responsibilities for different parties (e.g. ISA organs and ISA contractors) in developing and implementing REMPs, nor sanctions for non-compliance.
42. A better approach which would address those issues could be to adopt a REMP as a Council policy, in combination with making rules for REMPs in ISA Regulations.

Recommendations on Giving REMP legal effects: considerations by workshop participants

43. An overwhelming majority of workshop participants agreed that REMPs need to be legally binding in some way. A mere 'guiding' character was regarded not sufficient, also with respect to creating a level-playing field for contractors.
44. REMPs need to be open to regular review and updating.
45. There was broad support to a 'hybrid proposal': REMPs as Council policy decision, accompanied by Regulations giving certain parts legally binding effect.
46. There was some support also to the suggestion that the Regulations should restrict the LTC's ability to recommend approval of a plan of work unless and until there is a REMP, and the applicant's plans are assessed to comply with the REMP.
47. One working group made specific proposals for actions during the interim period while the Exploitation Regulations are being drafted:
    - Council Members should discuss and safeguard the binding nature of REMPs.
    - The REMP template could by adopted in the immediate term by way of a Council decision, and in the future may be adopted as an ISA 'Standard' or Annex to the Exploitation Regulations – to be followed in future REMP processes.

- ISA Council should pass a decision to declare that no new exploration contracts/plans of work will be approved by Council unless and until there is a REMP in place in the relevant region and the application has been assessed for REMP compatibility. REMP compatibility could be introduced into upcoming Council decisions regarding extensions of exploration contracts also.

48. Existing exploration contractors could be required to comply with provisions of REMPs now, by way of a Council decision or revision of the Exploration Regulations. (Though some participants expressed a view this was not the priority at the moment). Guidelines on selection of relinquishment areas (which could then be used for APEIs) could be helpful.
49. For the aspects of REMPs that are given legal effect by Regulations or Standards, there must be commensurate processes and powers in place to monitor and enforce compliance. A first step would be for current contractors to be asked to include in their annual report a section on whether / how they are complying with the REMP, and LTC can then report on this to Council.
50. Sponsoring States also can take responsibility to ensure contractor compliance with REMPs.

Next steps

51. The organizers announced that the workshop documents, i.e. the REMP Template and the Procedure document, should be revised in light of comments made during and after the workshop. The revised documents will be subject of national consultations of the German and Dutch government who will consider a submission for consideration of the ISA Council in February 2020.
52. The workshop report would be sent out for comments to the workshop participants and then submitted to the ISA Council for consideration.

Contents

Words of Welcome

Dr Lilian Busse, German Environment Agency (UBA)

Dr Busse warmly welcomed all participants to the workshop, co-organised by Germany, the Netherlands and the Pew Charitable Trusts. She pointed out that four core topics were to be discussed to meet the objectives of the workshop "*Towards a standardised approach to Regional Environmental Management Plans in the Area*" over the three days of the workshop, which are:

1. Planning instruments for better environmental management in the Area, with the objective of ensuring that necessary measures to ensure the effective protection of the marine environment are taken in line with the requirements of Article 145 of UNCLOS;

2. Planning instruments to address regional aspects, *e.g.* what contents should Regional Environmental Management Plans (REMPs) entail, should they address cumulative effects, and should they try to solve conflicts with other legitimate users of the sea, among others? Additionally, should REMPs also foresee region-specific goals, spatial regulations (such as mining areas and non-mining areas), and restrictions in temporal or seasonal terms? While the German Environment Agency is convinced that these are exactly the aspects which form the added value that could be achieved by the development and approval of REMPs, this has to be discussed in detail.

3. Whether a standardised approach - that is to say, a standardised template needed for the contents to be covered by REMPs, which all future REMPs should be in line with – is necessary? Is an agreed standard procedure for the development, adoption and also the review required?

4. What are the legal effects that the REMPs should have? In Germany's view – as has been repeatedly expressed over the last years, a REMP should have legal force, at least to a certain extent. Participants are expected to discuss all these questions in the course of this workshop.

Due to the wide expertise and interests present among the 80 participants of the workshop, Dr. Busse expressed confidence that substantive discussions and output would be delivered. She emphasised that the Hamburg workshop builds on the 2017 Berlin Workshop, co-organised by Germany and the ISA Secretariat, which broadly discussed the fundaments of ISA environmental policy and regulation.[3] In fact, two months before the Berlin workshop, the ISA Secretariat published a discussion paper on draft environmental regulations, which more or less entailed all aspects of environmental management, albeit slightly neglecting the regional planning perspective. The Berlin workshop dealt with all these aspects, and the conclusions – *i.e*. the summary of the Workshop Report was called "points for further consideration" - have been perceived to be very instrumental and instructive for the subsequent debate of the then developed drafts of the Exploitation Regulations. She added that this workshop, specifically addressing the topic of "Regional Environmental Management Plans", will be comparably ground-breaking as the Berlin Workshop.

Dr. Busse went on to iterate that Hamburg, as a major German city and international port, also hosts the International Tribunal for the Law of the Sea, and invited all participants to visit the Tribunal and to enjoy a reception in its premises that evening.

[3] https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/berlinrep-web.pdf

Before concluding, she highlighted one final point. She stressed that the discussion on "Regional Environmental Management Plans in the Area" should by no means be limited to the topic of deep seabed mining. She pointed out that there are other resources in the oceans which are or will be in the interest of humans, *e.g*. fish and/or genetic resources, just to name two of them. These resources may also require an overarching regional planning instrument one day. As such, what will be developed here in Hamburg might in future serve as a blueprint with regard to the use of other marine resources.

1 Introducing the workshop objectives

Tom Kompier, Strategic Adviser, Ministry of Infrastructure and Water Management, Netherlands

We are all aware of the deteriorating health of the oceans. Therefore, the oceans got their own Sustainable Development Goal, SDG 14, within the UN 2030 Agenda. The recently launched IPBES report on biodiversity and ecosystem services[4], the 6th UN Global Environment Outlook, GEO-6,[5] and the IPCC "Special report on the ocean and cryosphere in a changing climate"[6] are all equally alarming. It is against this background that Germany, The Pew Charitable Trusts and the Netherlands joined hands to organise this workshop in support of the development and implementation of standardised regional environmental management plans by the International Seabed Authority.

Since July 2011, the Authority has initiated work on the development of regulations for the exploitation of mineral resources in the Area. The Authority has the obligation to ensure that the marine environment is protected from any harmful effects that may arise during mining activities. Development of regulations to protect and preserve the marine environment is thus a critical element of its work. In 2014, the Netherlands submitted a strategic document to the ISA Council, entitled "The environmental management plan in the regulatory framework for mineral exploitation in the Area". The Netherlands requested the Council to have the Legal and Technical Commission address the compulsory establishment by the Authority of an environmental management plan as a requirement for granting contracts for exploitation in a designated area. The Council subsequently requested the Commission to consider the submission by the Netherlands in context with its work on the preparations of draft regulations for exploitation of minerals in the Area.

A REMP is one of the tools available to the International Seabed Authority to carry out its responsibility to protect and preserve the marine environment while managing the activities in the Area. The aim of this workshop is to contribute to the development of these Regional Environmental Management Plans by developing a standardised approach, a template, for all REMPs. Such a template should ensure that all REMPs are drawn up in a standardised way. The implementation of REMPs should then subsequently be part of the legal framework, helping

[4] https://www.oceanprotect.org/2019/04/29/ipbes-ocean-key-points-quotes-and-contacts/

[5] https://www.unenvironment.org/resources/global-environment-outlook-6

[6] https://www.ipcc.ch/srocc/

1. the sponsoring State to take an informed decision whether or not to sponsor the contractor in its bid for an exploitation contract with the Authority;
2. the Authority to take an informed decision whether or not to approve a plan for exploitation. In which case,
3. the approval of a plan for exploitation should - or must - not contradict the REMP.

Next to the Template, documents on the procedure and the legal effect of REMPs will also be discussed during the workshop, completing the overall picture of having an REMP in place before the approval of the first Plan of Work for exploitation activities.

Humankind is dependent on the oceans for survival. Developing and implementing REMPs will help the Authority to identify best measures required to protect the marine environment from the effects of deep seabed mining. It is hoped that this would occur in a transparent and consensus-building way.

2 Regional Environmental Management Plans, REMPs, in the context of deep seabed mining

2.1. Presentation: Regional Environmental Management Plans: A core instrument to ensure an effective protection of the marine environment

Harald Ginzky, German Environment Agency

REMPs are seen as an essential tool to ensure the effective protection of the marine environment pursuant to Article 145 UNCLOS. Hence, REMPs have the potential to provide region-specific information for the decision-making process on the conduct of activities in the respective areas. REMPs could, *inter alia,* entail region-specific objectives, taking account of the carrying capacity of the region. Cumulative effects and conflicts with other legitimate uses could be considered. REMPs furthermore provide a long-term planning reliability and a level playing field for contractors, in particular when shifting from the exploration phase to the exploitation phase.

There is one precedent of a region-specific plan, namely the Environmental Management Plan for the Clarion-Clipperton Zone (EMP-CCZ), established in 2012 (ISBA/18/C/22). Furthermore, the 'Preliminary strategy for the development of REMPs for the Area' of 2018 (ISBA/24/C/3) specifically identifies the following priority areas for the development of REMPs on a preliminary basis: the Mid-Atlantic Ridge, the Indian Ocean triple junction ridge and nodule-bearing province, and the North-west Pacific and South Atlantic for seamounts. Since then, several workshops have been held and further workshops are planned with the aim of developing REMPs for the respective regions (see 2.3).

The Strategic Plan adopted by the Assembly in 2018 (ISBA /24/A/CRP.3) describes REMPs as a means to protect the marine environment. A REMP should be "*developed, implemented and kept under review*" according to Strategic direction 3 – Protection of the marine environment. The current version of the Draft Exploitation Regulations require the Environmental Impact Statement (Draft Regulation 47), Environmental Management and Monitoring Plan (Draft Regulation 47) and Closure Plan (Annex VIII) to be in accordance with the applicable REMP. In addition, in July 2019, the

Secretariat of the Authority published the "Guidance to facilitate the development of Regional Environmental Management Plans" as part of a set of REMP workshop background documents for information.[7]

However, there is not yet a clear legal obligation that a REMP has to be in place before an application for an exploitation activity for the respective area could be approved. Nor is there an obligation that the activity must not contradict the objectives and the management measures of the said REMP. These points have been continuously raised by several State parties. Furthermore, neither the Strategic Plan, the Draft Exploitation Regulations nor the "*Guidance*" of the ISA Secretariat clarify the required contents of REMPs and the procedure for a REMP's development, approval and review.

This international workshop, entitled "*Towards a standardised approach for Regional Environmental Management Plans in the Area*", is intended to provide proposals with regard to a "standardised approach" concerning the minimum contents of REMPs as well as concerning the procedures for the development, approval and review of REMPS. Furthermore, it aims to discuss how REMPs could be given legal effect. As a basis for the discussion, three documents have been submitted to the participants for consideration which address the three aspects – contents, procedure and legal effect – and which are documented in the Annexes to this report.

Discussion

The question was raised as to how the organisers want to implement the results of the workshop, given the ongoing developments at ISA? Answer: First, there will be a Workshop Report, which will be submitted to the next ISA Council meeting. Secondly, all State parties can make formal submissions to ISA for consideration.

2.2 Presentation: Design and evaluation of the original CCZ APEI network: Lessons Learned

Craig R. Smith, University of Hawaii at Manoa

The presentation summarised the following:

(a) the goals and outcome of the original Pew funded workshop to design a network of representative marine protected areas (now called APEIs) to safeguard biodiversity and ecosystem function in the CCZ during manganese nodule mining,

(b) the key design elements recommended by the workshop for APEIs in the CCZ,

(c) lessons learned from the APEI design process of general relevance to deep-sea mining Regional Environmental Management plans, and

(d) results from a recent review of the APEI network in the CCZ.

The design of the APEI network in the CCZ was based on recommendations from a workshop of 22 experts (including scientists, international Lawyers, mineral geologists, and representatives from the ISA), sponsored by the Pew Charitable Trusts. The Pew workshop considered threats to the deep

[7] https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/remp_guidance_.pdf

seafloor habitats in CCZ from mining and other impacts, and reviewed data on patterns of abundance, biomass, biodiversity, species ranges, and gene flow across the region, and their relationships to environmental (*i.e*. habitat) variables in the CCZ. The workshop then developed general goals for APEIs in the CCZ and used MPA design principles to develop specific APEI recommendations for this seafloor region. APEI goals included protection of 30-50% of management area (*i.e*. the CCZ), capturing the full range of habitat variability in the CCZ, maintaining sustainable populations within the benthic fauna, replicating across the region to capture N-S and E-W turnover of biota, and making the APEIs large enough that their core regions are buffered from impacts of mining sediment plume.

General APEI elements included the following:

(1) The APEIs should be managed across the CCZ region as a whole (*i.e*. in a REMP).

(2) The CCZ region can be divided into three east-west and three north-south habitat strata (or subregions) because of strong productivity driven gradients in ecosystem structure, yielding nine distinct subregions within the CCZ, each requiring an APEI.

(3) The core area of each MPA should be at least 200 km in length and width, *i.e*., large enough to sustain populations for species potentially restricted to a subregion of the CCZ.

(4) Each APEI should contain the full range of benthic habitat types found within its subregion (*e.g*. dense nodule fields, abyssal plains, abyssal hills, seamounts and fracture zones).

(5) Each APEI core area should surrounded by a buffer zone 100-km wide to ensure that the APEI core is not affected by mining plumes.

In summary, nine 400 x 400 km APEIs were recommended, one in each of the 9 CCZ subregions defined by productivity gradients and faunal turnover. The APEIs were situated so as to avoid or minimize overlap with existing mining exploration and reserved claim areas and to protect as many seamounts as possible within a subregion. Within and between spacing of APEIs were of roughly similar scales (400-800 km), allowing the APEIs to potentially function as a connected network.

The APEI recommendations for the CCZ were presented to the ISA Legal and Technical Commission in March - May, 2008,[8] strongly endorsed by the ISA Legal and Technical Commission (LTC) in concept, and provisionally adopted in 2013, with repositioning by the LTC of two APEIs from their subregions in the centre of the CCZ to the periphery of the CCZ.

A workshop conducted in Oct 2019[9] to assess biodiversity across the CCZ and the representivity of the current network of APEIs has found that biodiversity varies across the CCZ as function of variables (*e.g*. POC flux, nodule abundance, depth) used in the original APEI design. Habitat types with high nodule abundance are poorly represented in the current APEI network, largely because of lack of APEIs in two subregions with high nodule abundance and many mining exploration claims.

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[8] Smith, C.R., De Leo, F.C., Bernardino, A.F., Sweetman, A.K., Martinez Arbizu, P., 2008. Abyssal food limitation, ecosystem structure and climate change. Trends in Ecology & Evolution 962, 518-528.

Wedding, L., Friedlander, A., Kittinger, J., Watling, L., Gaines, S., Bennett, M., Smith, C.R., 2013 From principles to practice: a spatial approach to systematic conservation planning in the deep sea. Proceedings of the Royal Society B: Biological Sciences 280 (20131684).

[9] https://www.isa.org.jm/workshop/deep-ccz-biodiversity-synthesis-workshop

Lessons learned from the APEI design and evaluation process include

- MPA networks should be erected within REMP before many exploration claims granted (otherwise ability to design viable networks may be compromised) – and give priority to using relinquished areas in APEIs
- Species/community distributions and connectivity patterns (for >>1000 spp.) are not fully knowable on time scales necessary to develop APEI networks (and REMPs) for deep-sea mining -
- A representative MPA approach must be used to fully protect biodiversity and ecosystem functions in the deep sea.
- There may be pushback from stakeholders to reduce/relocate APEIs, especially from prime-grade mineral deposits with the argument: "We don't know enough to justify an APEI in this area".
- However, because mineral abundance/grade (geochemistry) and biota are often linked, a precautionary approach requires protecting high-grade areas in absence of extensive regional data on biodiversity and connectivity.

Discussion

A participant inquired whether there are currently no APEIs situated within the main nodule area. Answer: There are some APEIs that have nodules, though no high nodule abundance. Most but not all habitat types are well represented.

Another participant questioned whether the terms MPA and APEIs can be used interchangeably? Answer: APEIs and MPAs are different in that APEIs are a time-limited, sectoral tool of the ISA only, while MPAs should provider broader, long-term protection to its environment.

A participant queried what can be learned from the experience with the CCZ EMP review, specifically, whether it is useful to set deadlines, *e.g*. are 5 years a good period, or what would be recommended? Answer: This comes back to an action plan set out in the CCZ EMP in 2012. There, a 2-pronged approach was taken with some parts being progressed independently of the review - *e.g*. taxonomic workshops. The timeframe was variable in order to incorporate new information as soon as possible, which means that some elements will be progressed independent of the review. The key concept is to integrate new knowledge immediately, and not to wait for review.

Another participant questioned whether representative sites really protect from biodiversity loss? If biodiversity loss cannot be prevented from occurring, can mining be permitted? The question has also raised the concern whether enough is known about what we will lose and how much, and what the consequences are? Are there ways to prevent that loss of biodiversity - *i.e*. do we have to talk about this in the first place? Answer: Part of the issue of biodiversity loss is a question of scale - local scale extinction is inevitable, but on other scales, in particular on a regional scale, this remains uncertain. We have to use the precautionary approach. Another major uncertainty is that the nature and scale of impacts will only be known after decades of mining. A representative approach is needed; science has to show up with impacts, leaving society to decide. For example, fishing: No one argues against the fact that increased fishing is bad for the environment, but it continues because it

is important to society. This may be the case also for mining. We have to identify the trade-offs, such as species extinctions, but in the end this will be very difficult to decide.

The question was raised why the CCZ APEIs were designated around the concessions, and whether there is a priority for mining there? Answer: The siting of the APEIs was originally to have APEIs also in the core CCZ region - at least two of them. But ISA moved 2 of them to outside the region to avoid any overlap with existing contracts, reserved areas and the US mining claim (national).

This led another participant to remark that at present, the REMPs are kind of a farce - due to avoidance of contracts they are of little use – and that any document should acknowledge that this is not the advice from science. Moving forward, the question is what could be a better mechanism. Answer: This is a valid point. We have to put scientific advice in more strongly next time. The relinquishment issue is very important, certainly for the Mid-Atlantic Ridge. Here, 90 % of areas will be relinquished. This is different in the CCZ. Relinquished areas should first be analysed for using them in the APEI network.

2.3 Update on ISA Regional Environmental Management Plans under development

2.3.1 Presentation: Developing REMPs for polymetallic sulphide mining on ocean ridges – some of the main issues

Phil Weaver, Seascape Consultants, UK

There are three types of resources that are likely to be mined in the Area. These are manganese nodules, cobalt crusts and polymetallic sulphides. Each is associated with its own unique habitat and ecosystems, and therefore REMPs may look different for each resource. Polymetallic sulphide mining has analogues with mining on land, and unlike the other two resources, the deposits are three-dimensional.

Polymetallic sulphides are formed at lithospheric plate boundaries when hot magma causes circulation of fluids through the crust that are then emitted at some locations forming hydrothermal vents. These fluids can precipitate metals such as zinc, lead, gold and silver in chimneys and mounds and in the subsurface. Metal occurrence and grade varies considerably between vent sites but there is potential for, perhaps a few, large ore bodies to be found. Mine sites will occupy small areas - probably less than 1 km^2 - and could be in place for years to decades depending on the magnitude of the resource.

Hydrothermal vents that are actively emitting fluids are frequently colonised by specialised hydrothermal vent fauna that have very limited distributions. These hydrothermal vent ecosystems will need careful attention in the development of a REMP, especially since their sporadic occurrence and linear distribution could give rise to connectivity problems if they were impacted or mined.

The new crust generated along the mid-Atlantic Ridge creates a rocky habitat that provides anchorage for attached animals such as corals and sponges amongst others. This rocky habitat soon becomes covered by sediment layers as the tectonic plates move away from the ridge axis. It has been estimated that up to 95% of the ridge axis (extending 50 km to each side of the axis) may be

sediment covered, thus rocky habitat may be of limited occurrence within the North Atlantic and rocky habitat faunas may also need conservation measures in a REMP.

The most likely mining scenario is that mines will be restricted to a few tens of km either side of the ridge axis and be located where there is rock outcrop or very thin sediment cover. Although the mines will have a very small footprint, plumes generated by the mining process may have impacts over much wider areas. Any REMP will need to take into account the potential impact of plumes that may affect all ridge habitats. However, the particulate material that could be entrained in a plume is ground ore, which has economic value. Therefore, good plume management could lead to environmental and economic gains and reduce the potential for cumulative impacts from multiple mining activities.

Discussion

A participant made the workshop aware of the fact that there are uncharted, often undocumented deposits of chemical weapons and ammunitions in the deep ocean of which plumes may arise, or lead to equipment failure. This should be taken into account in environmental risk management as well as operational risk assessment. However, it was noted that there are no easily accessible information sources of this.

Another participant inquired whether there was a recent information source for the technologies being under development. He/she considered most of the technology presented to be reflecting historic development; however, for component testing modern technology would be applied. Answer: There is limited knowledge available on recent technology developments. Some tests were done in freshwater or otherwise not representative areas. Some impacts will always remain. This is an engineering question.

2.3.2 Presentation: REMPs under development by the ISA: Cobalt-rich crusts in the Northwest Pacific Ocean

Malcom R. Clark, NIWA, New Zealand

The development of REMPs is an integral component of the draft Exploitation Regulations, with the expectation that such REMPs will be in place before any exploitation of deep-sea minerals resources is permitted. Hence, the ISA has been promoting discussion between managers, scientists, contractors and a wide array of stakeholders to progress REMPs as the primary vehicle for delivery of ISA environmental management objectives at a regional level, in addition to other regulations and contractor's individual management plans.

The first ISA REMP was designated in 2012 for the polymetallic nodule resource in the Clarion-Clipperton Zone, but as other resources have come under exploration contract in other ocean areas, it has become important to establish REMPs to cover these. One of these areas is the Northwest Pacific Ocean, where four exploration contracts have been issued for cobalt-rich crust. The first of several planned workshops was held in China in May 2018.[10] The objectives were mainly to promote

[10] International Seabed Authority, 2019b. Towards the development of a regional environmental management plan for cobalt-rich ferromanganese crusts in the Northwest Pacific Ocean: Report of an International Workshop Convened by the

understanding and agreement on appropriate policies and the legal context of REMPs, to develop a general REMP framework appropriate to the area and resource, and to develop plans for communication and cooperation between all stakeholders to collect the data necessary for designing and implementing a robust REMP.

The workshop built on the CCZ experience, with the same core principles and objectives to be achieved by a REMP, with a focus on appropriate approaches for the protection and preservation of the marine environment. These discussions emphasised the particular characteristics of seamount environments, as well as the complex interplay of oceanographic and physical geological factors influencing the distribution and abundance of biological communities on and associated with seamounts. Some key conclusions were that: seamount ecosystems vary at multiple spatial and temporal scales which is important for developing a mosaic of APEIs-they might not be regular; APEI design must consider the range of size and shape and geology of seamounts, so that representative APEIs include the variability in these characteristics; and target protection levels would be between 30-50% of the region.

Data collection and sharing were recognised as priority items to design the REMP. There are many data gaps that need to be addressed, between contractors, the ISA, and the scientific community. Filling these gaps will require improved cooperation and collaboration amongst stakeholders, and include capacity building and training. Next steps were also identified, including progressing an "international partnership" of stakeholders to progress the development of the REMP over a 2-3 year period, put effort into evaluating socio-economic aspects of a REMP, and initiate plans to promote data sharing, joint voyages and projects, as well as data standardisation.

The issues identified at the workshop will be discussed more in the context of the structure and content of REMPs that apply across resources. The recent granting of an exploration contract for polymetallic nodules in this NW Pacific region emphasises the need to broaden the focus from just seamounts to the wider deep-sea environment.

Discussion

A participant inquired whether there is a consideration of water movement in and out of seamounts when discussing the connectivity between seamount and water column and how to evaluate it around seamounts? In particular, it is known that there can be areas of low temperature hydrothermal flow. Answer: A lot of seamounts have this low temperature venting. This is picked up right through general oceanographic investigations, not in terms of fauna and species connectivity.

2.4 Presentation: Marine Regions Forum 2019: Outcomes

Pradeep Singh, IASS, Germany

On the Initiative of Germany and the European Commission[11], the Marine Regions Forum[12] was held September 30 to October 2, 2019 in Berlin, Germany. With approximately 18 dialogue sessions dealing with pressing ocean issues within and across regions, the conference was attended by approximately 200 leading experts from academia and research, policy and decision-making, non-governmental organisations and industry, the arts and media from across the globe.

A half-day session[13] focused on "Deep seabed mining in the Area: The role of regional ocean governance", with the objective "to explore interests and perspectives of stakeholders in relation to REMPs and options for an integrated and participatory regional planning approach". To set the scene, Dr Ingo Narberhaus from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) briefly introduced the German delegation's position at the ISA. He stressed the need to give strong effect to Article 145 of UNCLOS on the protection of the marine environment, and for the adoption and implementation of REMPs through a standardised approach before mining activities take place. Four subsequent presentations highlighted different aspects of importance to regional environmental management to be developed under the auspices of the International Seabed Authority. Ms. Jihyun Lee, Director of Office of Environmental Management and Mineral Resources, International Seabed Authority, explained the current efforts of the ISA to give strong effect to the implementation of Article 145, among others by developing REMPs in those regions of the Area where multiple mineral exploration contracts with the Authority exist. Dr Phil Weaver, Managing Director, Seascape Consultants Ltd described progress made in considering options for sites to be protected from mining in a REMP for northern Mid-Atlantic ridge. Dr Ekaterina Popova, National Oceanography Centre, UK, highlighted that Areas beyond and within national jurisdiction can be tightly connected via two processes, active (migratory) connectivity and passive (circulation) connectivity. In particular in the western Indian Ocean, this may expose the ecosystems of the coastal waters to the downstream effects of activities in ABNJ. Dr Piers Dunstan, Commonwealth Scientific and Industrial Research Organization, CSIRO, presented a framework for integrated regional management for the Indian Ocean which enables to not only achieve common outcomes or objectives, but also to attribute the impacts to specific sectors and actors.

Next, five panellists were invited to provide their views REMP development and stakeholder consultation in the Area, in particular the Indian Ocean. Contractors such as the German Federal Institute for Geosciences and Natural Resources, represented by Dr Ulrich Schwarz-Schampera) do

[11] In 2017, Germany announced at the UN Ocean Conference in New York and together with the European Union at the Our Ocean Conference in Malta that they will support "the establishment of a cross-sectoral and cross-boundary multi-stakeholder platform for regional ocean governance" under the Partnership for Regional Ocean Governance (PROG), (#OceanAction18439). This important commitment was delivered through the development of the Marine Regions Forum, a participatory, knowledge-based conference platform and process at the science-policy-society interface.

[12] The conference report will be made publicly available soon on the website: https://www.prog-ocean.org/marine-regions-forum/. For a copy of the detailed minutes taken down during the session, please e-mail pradeep.singh@iass-potsdam.de

[13] co-hosted by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany (BMU), the German Environment Agency (UBA) and the Institute for Advanced Sustainability Studies (IASS).

invest a lot in research, which contributes to understanding the ecosystems, however the reports to ISA are not publicly available. Dr Baban Ingole, National Oceanography Centre, India, explained that recovery from the mining in the deep sea is not to be expected. However, research in developing countries has benefited greatly from mining interest. Duncan Currie, Deep Sea Conservation Coalition, pointed to the need for more transparency, institutional reform and the lack of knowledge, justifying a moratorium on further contracting. Thembile Joyini, South Africa, commented on the urgent need to make progress with the development of ISA environmental standards and guidelines to complement REMPs. From a coastal State perspective, Angelique Pouponneau, Seychelles Conservation and Climate Adaptation Trust made a strong plea for early and formal consultation with stakeholders, including adjacent coastal States, and help needed for monitoring national waters.

During the following plenary discussions, the following main themes were discussed:

- Data confidentiality and the need to make information (especially environmental) public;
- The importance to have more capacity building framed in integrated ocean governance, as well as more widespread information about those opportunities;
- The importance of more transparency and formal consultation to incorporate diverse interests (*e.g*. fishing) in the development of REMPs;
- The fact that previous bad experiences with terrestrial mining render optimistic scenarios for marine mining (in the Area) unrealistic, especially given the difficulty of monitoring; and
- The need to reform institutional capacity of the ISA in order to allow science-based decision-making and to ensure compliance (Inspectorate).

The following are some of the key take-home messages from the session:

- REMPs provide a framework for integrated ocean management with operational management targets to ensure informed decision-making based on latest science and contemporary knowledge/experience, and that conservation and management decisions are taken with foresight and not in hindsight.
- Transparency and stakeholder engagement, especially with adjacent coastal States, but also other users of areas beyond national jurisdiction, is crucial. Effective participation is needed in all aspects related to activities in the Area.
- States with large oceanic waters need support in surveillance and monitoring, including on transboundary effects originating in ABNJ.
- ISA should seek advice from collective independent research avenues, comparable to IPCC advice, including on oceanic processes.

2.5 Guidance to Facilitate the Development of REMPs

Wanfei Qiu, Office of Environmental Management and Mineral Resources ISA

[Disclaimer: The ISA Secretariat joined this workshop as an observer upon the request of the Government of Germany to provide an update on the work of the Secretariat to facilitate the development of the Regional Environmental Management Plans (REMPs), in accordance with relevant decisions of the Council. In this context, the participation of one staff member of the Secretariat does not imply the expression of any opinion or endorsement whatsoever on the part of

the Secretariat on the content of the workshop's discussions, outcomes or any associated document or outputs.]

The ISA Secretariat's 'Guidance to facilitate the development of REMPs' document builds on relevant information from existing ISA documents and scientific literature, to clarify the roles and responsibilities of ISA organs within existing ISA legal and policy processes for developing REMPs and to discuss possible scientific and technical approaches, among others. The key points from the Guidance document were highlighted as follows.

(a) Pursuant to Article 165 of UNCLOS, the Legal and Technical Commission of ISA is responsible for preparing draft REMPs and making recommendations to the Council. The power of the Council to adopt a REMP is provided for under Article 162 of UNCLOS.

(b) The ISA process for developing REMPs has been clearly articulated in a number of policy documents and such efforts to develop REMPs were welcomed by the Council. The development of REMPs is an essential element of the Strategic Plan and High-level Action Plan for the ISA during 2019-2023, as adopted by the Assembly in 2018 (ISBA/24/A/10) and 2019 (ISBA/25/A/15), respectively.

(c) During the 24th Session in 2018, the Council took note of the ISA's strategy for developing REMPs (ISBA/24/C/8). The Council noted that the strategy laid out a coherent and coordinated approach to the process and emphasised the need for REMPs to be developed under the auspices of ISA. The Council also endorsed the priority areas for the development of future REMPs as presented in ISBA/24/C/8. In March 2019, the Council took note of a report (ISBA/25/C/13) on the implementation of the strategy, including a programme of work to develop REMPs through a series of workshops planned during 2019-2020 in line with the budget allocated for this purpose.

The implementation of the strategy has already started with two workshops held in Qingdao, China and Szczecin, Poland in 2018. Subsequently, the ISA workshop for the northern MAR will be held during 25-29 November 2019 in Evora, Portugal. The workshops will review and synthesize scientific data and information, and identify potential management measures for the consideration of the Legal and Technical Commission in preparing draft REMPs.

During the 25th Session, the Council took note of a report on the relationship between the REMPs and draft exploitation regulations (ISBA/25/C/4), which articulates that REMPs are not themselves legally binding instruments, but rather instruments of environmental policy. From an implementation perspective, REMPs could support environmental management within contract areas by setting regional-level environmental goals and objectives, compiling scientific data and information, providing certainty regarding area-based and other management measures, and facilitating collaboration among the contractors, the scientific community and other stakeholders.

In identifying area-based management measures, an important question is how "coarse filter" and "fine filter" spatial planning approaches can be applied in different regions. A key challenge in the development, implementation and review of REMPs is to address data gaps to support spatial planning at the appropriate scale of the REMPs.

Discussion

The first question inquired how a REMP, which is not legally binding but a policy document as described in the Guidance document, can be put into force? Answer: The CCZ EMP was adopted by

Council decision. Council decisions have binding effects on the contractors. The Council decision that adopted the CCZ EMP includes a number of binding elements for implementation, such as the initial 3-year period for implementing the plan, the flexible APEI design subject to new information available, and the 5-year period or until further review of the no-mining designation of APEIs.

A participant observed that both REMPs and APEIs need evolution because a lot of monitoring and research is needed in order to fill the `squares on the map with life´. The question was who will do that beyond contractors? Independent researchers? How can contractor reports be verified? Answer: REMPs go beyond contractor areas spatially and in terms of objectives. Currently, there is a strong reliance on contractor efforts for monitoring. Collaboration between contractors and the scientific community is important in this respect. Implementation of regional-scale research and monitoring programme will require a lot of resources and joint efforts and collaborations, including with other international organisations.

Another participant thought it was very positive that the REMP Guidance document was a "living document". It was noted that the Guidance document does not reflect the statement of a number of delegations in July 2019, that the regulations need determine that REMPs have to be in place prior to starting to consider any Plan of Work presented. This should also be reflected in the Guidelines. The other question was how to make REMPs legally binding to the ISA and contractors as so far, REMPs are procedural documents. Answer: Member States will discuss this in the February 2020 Council meeting. As for the question how to make REMPs legally binding, it needs to be clarified regarding what should be binding, who will be bound and in what ways (see further workshop discussion on 5 Giving Effect to REMPs.

A question was asked as to which definition of precautionary approach is being applied in light of the "learning by doing" approach described for developing REMPs, *i.e*. does it mean risk management, or prevention of serious harm? Is it written somewhere? Other stakeholders may use it with a completely different meaning. Answer: A practical challenge for the implementation of the precautionary approach is that there are very limited site data where there are no exploration contracts. This is one of the reasons why ongoing efforts to develop the REMPs have been focusing on regions where exploration contracts are in place.

A concern was raised about having a procedure as being captured in a "living document" which may make it difficult for stakeholders to always trace the latest version. Has there been or will there be an opportunity for stakeholders to comment on the REMP Guidance document? Answer: the REMPGguidance document is available on the ISA website and comments can be sent to the Secretariat. For the purpose of clarity, updates and revisions can be tabled and attached to the guidance document.

In addition, the same participant inquired about the REMP advisory committee, which was established by the Secretariat in 2018, and which recommended a REMP procedure in January 2019. However, this recommendation was not reflected in any of the documents released by the ISA Secretariat in 2019, including the Guidance document. Why was no account taken? Answer: the advisory committee was a separate process and the speaker would need time to read its report to see which elements were incorporated into ISA documents and which were not.

Following up, it was asked whether the guidance will be sent to the Council for adoption. Answer: the Guidance document currently contains some elements that have already been adopted by the

Council. It also includes text from the Convention and other legal documents, as well as discussion of scientific literature, and was not prepared in a format to be adopted by the Council. However, Member States can make suggestions.

2.6 Presentation: What we can learn from the Strategic Environmental Assessment process in developing REMPs

Dr Daniel Jones, National Oceanography Centre, UK

A range of tools are available for environmental management of deep-sea mining activities. Of these, management activities that cover multiple mining projects, *i.e*. at a regional or strategic level, may be particularly effective. This is because they can encourage a regional-level environmental understanding and develop a consistent and integrated management plan across large areas that takes into account key sensitivities and cumulative impacts. Planning at this level is not new and is done at international,[14] regional[15] and national levels globally by both government regulators[16] and by industry consortia.[17] The SEA process, being well developed, offers some insights for the development of regional environmental management plans (REMPs) by the International Seabed Authority (ISA). SEA can operate at multiple levels (tiers) and implementation at a regional level, equivalent to the ISA REMPs, is common. As such, REMPs are a type of Strategic Plan. It is common in the SEA process for the detailed assessment process to be formalised and captured in a SEA report, before this is used to develop the environmental management plan (direct equivalent to a REMP). Some aspects of this process are missed by the ISA approach. The advantage of following and documenting a consistent process is that it transparently documents how environmental considerations have been integrated into the decision-making process, which may include screening of important issues, assessment of alternatives, modelling, stakeholder consultation and risk assessment. This facilitates periodic review, monitoring, evaluation and continuous improvement, particularly in the underlying understanding of the baseline environment and how it responds to project impacts. Examples of using this process, from SEA elsewhere, could be incorporated into the developing ISA approach for regional assessment. This may encourage similar and consistent approaches between the major management regions. In the context of deep-sea mining, regional environmental assessment is particularly important as it provides a means of anticipating and managing cumulative adverse impacts of the environment, for multiple industries, multiple mining projects and other environmental change (*e.g*. climate change). It also feeds into spatial planning.

A couple of lessons learned can be offered as to what makes a SEA an effective process: SEAs should be

- applied early and proactively;

[14] United Nations Economic Commission for Europe Protocol on Strategic Environmental Assessment (SEA) to the Convention on Environmental Impact Assessment in a Transboundary Context 2003

[15] *e.g*. European Strategic Environmental Assessment directive 2001/42/EC

[16] *e.g*. UK Offshore Energy Strategic Environmental Assessment

[17] *e.g*. UK Marine Aggregate Regional Environmental Assessments

- integrate environmental, social and economic aspects and be integrated within larger planning and decision-making processes;
- take into account its place within the other tiers or levels of assessment. For instance, SEA should inform future EIA processes at the project level;
- guided by regulatory, policy and other forms of guidance rather than being *ad hoc*;
- flexible and adaptable;
- transparent and include opportunities for public involvement throughout;
- effective incentives must be in place to ensure that the SEA is adhered to;
- followed up in terms of performance, as well as effects, compared with predictions and in terms of improving future policies plans and programmes as well as improving the assessment process itself; and
- political will necessary for putting in place and implementing an SEA must exist. Decision makers must be participants in the design establishment and implementation of the SEA

In particular, the documentation of the process has shown to be important for effective iteration and improvement. Finding approaches to fill gaps in key information and continue learning, and in particular the evaluation of different options are crucial steps. A wide range of tools and experiences for SEA-like process is available to inform the ISA REMP development. Despite the difficulties of management at this level (*e.g*. engagement with other management agencies with specific jurisdictions), there are still many opportunities for the ISA to incorporate into its practice beneficial strategic-level approaches experienced by its Member States.

Discussion

A question was raised whether a (ISA-level) Strategic Environmental Assessment, SEA, was suggested on top of the (region-focused) Regional Environmental Assessment, REA? Regional level processes and decisions were to be preferred as they can be much more understandable and concrete. Can parts of the SEA process be brought into REA, or do they have to be kept separate? Answer: No new layer was suggested here. However, the SEA encompasses a number of layers - regional is a good level. There is value to have a layer above for setting the rules to make the different REMPs consistent with each other, but no further level of assessment. Some of the approaches applied outside the deep seabed mining can be used or fit to the ISA needs.

A participant inquired on the consultation procedures, in particular how stakeholders are identified, such as *e.g*. applied in the UK. Was there a pre-selection process by the government or self-identification by stakeholders? Answer: In practice, this varies with the actual assessment; however, the SEA mostly has a stakeholder identification process as a start, which includes both active and passive nominations. The actual consultation process can be carried out using a broad array of tools and range from formal, written to informal meetings.

An observation was made that SEAs and REMPs are essentially the same thing. The importance of assessing cumulative impacts was stressed, in particular for a developing industry such as deep seabed mining. The decision-making options were required to include the no-mining option.

A participant noticed that cumulative impacts were not prominent in the considerations for the Clarion-Clipperton Zone, CCZ, and currently no management measures were in place between the exploration contract areas there. The question was how many mining operations could be accommodated before cumulative impacts would occur, *i.e*. is there a threshold? Answer: hresholds

for predicting impacts of a mining plume are very difficult to predict. This environment is not well studied and has the clearest bottom waters on the planet. There is no comparable environment to study such effects. Therefore, rough estimates have to be made. There is no understanding of cumulative mining impacts until long-term monitoring has been done. However, chronic impacts are different from acute impacts, and are so far not understood. Mining should best be approached as an incremental process rather than licensing all at once in a region.

One participant queried how an SEA or REMP would have to be structured to allow for a decision-making to be in line with the risks assessed in the environmental parts of the SEA rather than to continue with the approval of activities which have been identified to pose risks to the environment. How can it be ensured to meet the objectives of a REMP? Answer: This cannot be ensured, but at the very least an SEA process reveals all the uncertainties and unknowns, as well as the risks associated with undertakings. Otherwise, these would go unnoticed; this way, major "no-gos" can be avoided.

3 Objectives, function and principles of REMPs for deep seabed mining

3.1 Presentation: Purpose, objective, and principles of REMPs

Dr Aline Jaeckel, University of New South Wales, Australia

This presentation critically examined the purpose, objectives, and principles of the REMP template, with a focus on potential additions to the template. To start with, the presentation argued for an additional section in the template on APEI design criteria. Regarding the template's stated purpose; the presentation argued that the REMP should also apply to contractors, not least because any project-specific environmental impact assessment should be in line with the relevant REMP.

The objectives of the template were highlighted as being somewhat broad and non-specific and it was unclear why the section on the REMP's goals only appeared later in the template. The presentation argued for a different structure: (1) general goals that apply to all REMPs, (2) region-specific objectives that follow the SMART format, and (3) region-specific targets and indicators.

Three potential additional objectives were discussed as well. First, each REMP could specifically aim to avoid impacts of activities in the Area on mid-water fish stocks and ecosystems, not least to prevent impacts on commercially-fished species.[18] Second, the template could state specific objectives relating to climate change. Examples include: To preserve a certain percentage of sites that are least impacted by climate change,[19] to prevent exacerbation of ecosystem vulnerability to ongoing climate change, or to ensure that activities in the Area would not cause 'adverse effects on

[18] Drazen et al., 'Report of the Workshop Evaluating the Nature of Midwater Mining Plumes and Their Potential Effects on Midwater Ecosystems', 5 *Research Ideas and Outcomes* (2019), https://www.biogeosciences.net/16/3133/2019/.

[19] Dunn et al., 'A Strategy for the Conservation of Biodiversity on Mid-Ocean Ridges from Deep-Sea Mining', 4 Science Advances (2018) eaar4313, http://advances.sciencemag.org/lookup/doi/10.1126/sciadv.aar4313.

climate or weather patterns'.[20] Third, the presentation drew attention to a formulation that was used by the ISA's Preparatory Commission in its draft regulations from 1990, when it suggested that '*serious harm'* would include '*any effect … which represents … loss of scientific or economic values which is unreasonable in relation to the benefit derived from the activity in question*.' This wording could be relevant for regional objectives in REMPs.[21]

In relation to principles, the presentation noted that it would be beneficial to define the spatial extent of the principle of integrated ecosystem-based management within the template. Two potential additions to the list of principles were also discussed. First, the template could refer to best available science, not least in relation to the periodic review and update of each REMP. Second, another principle that could be relevant for the template is the 'sufficient information requirement' found in the Environmental Protocol to the Antarctic Treaty as well as the Convention on the Regulation of Antarctic Mineral Resource Activities (which is not in force). The former requires any activity in the Antarctic Treaty area to be 'planned and conducted *on the basis of information sufficient to allow prior assessments of, and informed judgments about, their possible impacts* on the Antarctic environment and dependent and associated ecosystems'.[22] It involves ensuring that the capacity exists to 'monitor key environmental parameters and ecosystem components' and to 'respond promptly and effectively to accidents'. It also requires that 'technology and procedures are available to provide for environmentally safe operations',[23] thereby offering a procedural safeguard in support of the ISA's obligation to ensure effective protection for the marine environment.

3.2 Working Groups

The participants formed three working group meeting in parallel. All of them addressed the following questions, which ask for advice of the participants on:

1. What are the purposes and objectives of REMPs? Are there additional purposes and objectives that you want to add to the REMP template? Are there purposes and objectives that shall be deleted? Why? (Section 1 of the REMP template)
2. Do we need to mention the principles in each REMP? What is the steering effect? Are there additional principles that you want to add to the REMP template? Are there any principles that shall be deleted? Why? (Section 2 of the REMP template)

The summary below was compiled by the organisers from the summaries provided by the moderators and rapporteurs of the different working groups.

Overall, it was felt that the `Template´ document drafted by the organisers made a good start, but that additions as proposed in the presentation by Aline Jaeckel are worth consideration. All groups

[20] See *e.g*. Protocol on Environmental Protection to the Antarctic Treaty, (adopted 4 October 1991, entered into force on 14 January 1998) 30 ILM 1455, article 3(2)(b).

[21] Preparatory Commission for the International Sea-bed Authority and for the International Tribunal for the Law of the Sea, *Draft Regulations on Prospecting, Exploration and Exploitation of Polymetallic Nodules in the Area*, LOS/PCN/SCN.3/WP.6/Add.5 (8 February 1990), article 2(2).

[22] Protocol on Environmental Protection to the Antarctic Treaty, article 3(2) (emphasis added).

[23] Ibid.

highlighted some common themes. A need was seen to reorganise purpose, objectives, and principles into the best-practice management hierarchy of "overarching goals", "objectives" and "targets". In Template Section 1 the term 'overarching goals' should be used instead of 'objectives' which should be used in Section 3 (Regional Goals and Objectives). Guidance will be needed (perhaps as an annex) with appropriate definitions to guide allocation. It was highlighted that the purpose and objectives depend on the nature of the REMPs as a policy instrument or a legally binding measure.

Several miscellaneous issues were raised:

- Do we need an additional layer of the vision of an REMP?
- Do we need a dispute settlement clause in REMP?
- Do we need a provision on the potential effects of munition / chemical weapons in the seafloor and the interaction with DSM?

3.2.1 Recommendations as regards the Purposes and Objectives (Sections 1 and 2 of the Template document)

1. *The Purpose of the REMP (Section 1)*

- The Template should be self-explanatory and therefore make clear to anyone why a REMP is needed and to justify that the objectives can only be achieved with REMPs.
- Need to consider how aspirational REMPs should be. For example, use of "only" best-available scientific information" to build APEIs should be built into the objectives right at the start moving forward, and not replicate how it has been done with CCZ. This should be added into Template Section 1, end of paragraph 1 *e.g*. "using only best-available scientific information in the region as a whole" or similar;
- Recognise the region as the common heritage of mankind (CHM) and that all States (including developing States) have a stake in the REMP;
- Include SDG 14 (particularly target 14.2) into paragraph 2, and other relevant instruments *e.g* Article 145 UNCLOS;
- Should include that REMP has to be adopted before a contract is given.
- Better align with draft regulations / objectives;
- Make reference to project-based EIA;
- Identify regional mitigation options;
- Add to paragraph 2; "To inform ISA, sponsoring States and contractors on areas where contracts should be best placed to ensure effective protection of the marine environment" and "to be considered by contractors in the development of their Plans of Work, as well as other stakeholders".

2. *Objectives (Section 1, should be Section 2 "Goals")*

- Alignment needed of global objectives (in ISA Strategic Plan) and regional objectives;
- Objectives are currently a mixture of inputs and outputs/ means and ends; should be clearer and eventually shorter;
- Make reference to scale (*i.e*. Area, region, impact area) to clarify context;

- Objective 2. “ecosystem-based management” should be moved to a guiding principle (list Section 3).
- Resilience and services should be added to 1. Some participants suggested it could be included as writing “ecological integrity, including, for example, ecosystem structure, function, resilience, recovery and services”. Also consider inclusion of the 3D environment in this measure.
- Climate change (recognising other stressors to the environment), should be a stand-alone objective. Should be changed to presenter’s suggestion: “avoid exacerbation of ecosystem vulnerability to climate change”.
- Reword 9 (as a goal) and add after second comma “ensure engagement and cooperation between all States, contractors and other stakeholders”.
- Number 10, change to “Identify the potential conflicts” instead of “mitigate”, as participants were unsure how a REMP could actually mitigate conflicts. Also remove “avoiding overlap between contract areas” as this became redundant.
- SMART objectives will take a long time to develop and make the REMP more complex. Query whether those can be developed in a subsequent step.
- Should we have regionally-specific objectives?
- Query whether promotion of MSR / capacity building should be part of an REMP (no agreement within the group);
- Ensure involvement of first nations;
- Ensure effective monitoring procedures (objectives, review, feedback mechanisms);
- Identify gaps in knowledge relating to the region to try and fill them for next 5-year review
- Effects on the atmosphere should be considered;
- Cumulative impacts should include climate change;
- Ensure transparent decision-making and public participation;
- Should include mitigate and reduce impacts, and restoration;
- Avoid/prevent species extinction was discussed:
    - Does biodiversity loss already cover it/ is it the same as species extinction?
    - Does it create obligations for contactors? (link to EIS and EMMP)
    - Is it possible to avoid all extinctions, or can we distinguish between acceptable/unacceptable harm?
    - Deep sea habitats act as stepping stones
    - Ecosystem management should target ecosystems/communities not species

3.2.2 Recommendations as regards the use and completeness of Principles for REMPs

- Better clarify how objectives/overarching goals and principles interact;
- Query whether it should be precautionary principle instead of approach;
- Many of the principles (*e.g*. 2.8) should be moved to "measures".
- `Sufficient´ information requirement: It is unclear how much information is `sufficient´. It will potentially be difficult to get agreement on it. The 1988 Antarctic Mineral Convention predates the 1992 Rio Declaration which set out the precautionary principle. Arguably precaution goes beyond the sufficient information requirement and is indeed stronger.
- A clear review of measures with a defined mechanism is needed;
- `Best available science´ should be included although perhaps better to name it `best available information/knowledge´ to include social considerations and traditional knowledge;
- Ensure alignment with SDGs (not only SDG 14) (but see above proposal to include in purpose section);
- Transparency and accountability should specifically include stakeholder participation.

3.3 Plenary Discussion

A participant wanted to have further explanations as to what kind of effect legal implications of REMPs might have on the formulation of purpose and objectives/overarching goals of REMPs in general – or in other words, isn´t a REMP just a REMP? Answer: The more binding the measures of the REMP, the more precise a formulation of *e.g*. the goals and in particular the management objectives will have to be. This would have to be considered when putting the template together.

4 Contents of REMPs

4.1 Presentation: Planning across horizons: REMPs as a tool to address cumulative effects and use conflicts, including remarks on other relevant regimes

Kristina M. Gjerde, IUCN Global Marine and Polar Programme and Middlebury Institute of International Studies at Monterey, California

For REMPs for deep seabed mining to address cumulative effects and use conflicts, they will need to integrate a wide range of spatial, temporal and multi-sectoral and transdisciplinary issues, values and effects. As the deep sea is a complex, changing and increasingly vulnerable environment, best practice, principles and objectives from other relevant regimes such as the Convention on Biological Diversity (for describing ecologically or biological significant areas, for the conduct of environmental impact assessments and strategic assessments) should underpin the process for and role of REMPs in deep seabed mining.

Why is this important? Once assumed to be a dull, dark and disconnected place, the deep seabed and mid-water column are now known to be a diverse, colourful and closely interconnected with critical

ocean and planetary function. Seamounts, abyssal plains and hydrothermal vents host a wide variety of life forms, often intertwined with and dependent upon the target mineral resources. The water column hosts a variety of amazing yet poorly studied creatures that support commercial fisheries and vulnerable pelagic species. The daily migration of many of these deep-sea creatures also plays a vital role in sequestering carbon dioxide; atmospheric CO_2 could be 50% higher were it not for this biological pump.

The existing REMP for the Clarion-Clipperton Zone was not designed to address cumulative impacts or conflicts of use. Its single-sector (*i.e*. mining) and after-the-fact approach that excluded areas where exploration contracts had already been allocated, has undermined its effectiveness in meeting the CCZ REMP's agreed goals of protecting representative biodiversity, ensuring connectivity and maintaining ecological functions and processes across the CCZ. And even if the APEIs are sufficient to protect representative biodiversity, the current REMP does not address other potentially affected activities, set environmental standards for mining inside contract areas, protect unique or otherwise significant areas, or prevent damage to flora and fauna that may be affected inside or outside the contract area.

As we are now living in a multi-use and stressed ocean, REMPs must respect and integrate other users and interests, including the interests of humankind as a whole (present and future generations) in the protection of biodiversity and ecosystem services. REMPs will need to incorporate and be responsive to ongoing and future climate-change and CO_2 related impacts. REMPs should thus be based on a prior Strategic Environmental Assessment for the relevant region, and be conducted in an inclusive and cross-sectoral manner. REMPs should indicate areas where mining should and should not take place including within any exploration or exploitation contracts as well as a network of APEIs. REMPs should also include precautionary environmental controls to prevent harmful effects. These controls will need to be based on a far better understanding of environmental conditions and potential cumulative effects, including from climate change than at present to inform the development of measurable and actionable environmental thresholds and indicators. Region-wide research and monitoring should begin today.

Discussion

A participant inquired about the possible role of the currently negotiated BBNJ Agreement[24] in contributing to REMPs. Answer: The possible of role of the technical and scientific advisory body, as mandated by the Conference of Parties, to the Strategic Environmental Assessment phase was highlighted. This phase would be best suited to involve all parties, be inclusive to all interests and information, be participatory, and result in an environmental management plan/spatial plan.

Another participant remarked that the main obstacle for a sound spatial plan was the pressure for exploitation. How much time would be needed to do it thoroughly? Would more time, *i.e*. by way of a moratorium help? Answer: Certainly, much more information is needed. A dedicated research programme could be instrumental to addressing the key open issues.

[24] https://www.un.org/bbnj/

4.2 Working Groups

The participants formed three working groups meeting in parallel. Each group focused on a different question, and structured the discussion as appropriate:

Group 1: Cumulative effects may result from natural stressors (REMP template 3.2.1.1.), from (multiple) seabed mineral activities (3.2.1.2), and from other legitimate users in the region (3.2.1.4). Are there other scenarios that may cause cumulative effects? How can the REMP Template work to assist avoiding cumulative effects?

General comments from the group:

- Climate change is not a natural stressor, but man-made. Recommendation:
  - Change last bullet point of 3.2.1.1 to: "Identification of natural ***and anthropogenic*** stressors in the region";
  - Add some examples of natural (*e.g*. volcanic eruptions, benthic storms, El Nino/La Nina event) and anthropogenic stressors (climate change, input of pollutants, nutrients).
- Temporal and spatial scales and dynamics for stressors need to be addressed, because during some stages of cycles/changes species are more susceptible to additional stress from mining than during others (*e.g*. El Nino / La Nina events, which are becoming more frequent than in the past).
- The multiple water layers that are distinct biomes (*e.g*. surface, mid-water, bottom water) need to be defined, because their impact has different consequences.
- Temporal and spatial scales need to be incorporated for all of the listed features
- Other legitimate uses should include long-term marine scientific research areas (not only projects), this could be added to 3.2.1.5 instead of 3.2.1.4.

Are there other scenarios that may cause cumulative effects?

- The list of scenarios needs to be reviewed regularly with respect to new / changing cumulative effects;
- Cumulative effects need to be differentiated, because they can be synergistic, additive, or antagonistic;
- Loss of genetic diversity and habitat (not only loss of species, biodiversity) may have cumulative effects and needs to be added;
- It needs to be considered that stress may come from outside the region of the REMP, *e.g*. for migratory (pelagic) fauna. An example is fishing that puts stress on species (*e.g*. sharks) that visit the CCZ only temporally;
- Critical life history stages exist, where species are more vulnerable to stress (*e.g*. whales during feeding periods);
- Losing some species critical to the ecosystem, *e.g*. ecosystem engineers or at central positions in the food web, has a more severe effect than losing some other species; these aspects need to be added to "vulnerable or fragile species"

- Additional mining of a different mineral resource nearby (*i.e*. overlapping impact areas, even if consecutively in time because of long-lasting effects) will lead to cumulative impacts;
- Geoengineering activities for reduction of atmospheric CO_2 levels (*i.e*. anthropogenic emissions), such as artificial ocean upwelling, ocean alkalinisation, or ocean fertilization;
- Contractors may want a hierarchy of importance in the list of cumulative stressors to monitor and assess, but most in the group felt this would not be sensible as this may potentially be difficult to provide or change over time and hence be even counterproductive.

How can the REMP template assist in avoiding cumulative effects?

The REMP Template can facilitate

- Management of mining activities to avoid clashing with other uses in space and time.
- A scoping of what needs to be included in the list needs to be included as well as scoping to identify knowledge gaps.
- The setting of thresholds which may lead to the situation that a contractor may not be allowed to conduct or continue mining activities in his contract area anymore. This is a risk the contractor has to face when applying for a contract.

Group 2: How can potential use conflicts be addressed by procedural arrangement with international bodies (REMP template 3.4)? What is the mandate of ISA in this respect? How to establish an effective cooperation with other international bodies?

Consultation and co-operation with international and non-governmental organisations according to Article 169 LOSC[25]

- An example of an existing attempt to achieve such cooperation is the so-called OSPAR collective arrangement in the North East Atlantic,[26] which meant to serve for information exchange with a focus on environmental protection in areas beyond the limits of national jurisdiction between all global and regional actors with competence in OSPAR area. So far, it is essentially a bilateral arrangement of the OSPAR Commission and the North East Atlantic Fisheries Commission, NEAFC. Other sectors were invited, but did not join.
- Cooperation with other existing bodies is a big challenge, as seen also in the BBNJ negotiations decisions. A full understanding of the operations and legal mandate of the respective organisations is required. Future of BBNJ instrument/bodies should not undermine existing bodies and agreements. BBNJ can potentially bring to the table all the relevant users and actors, beyond what UNCLOS currently allows for ISA. Therefore, it does not undermine ISA, but it actually adds capacity to ISA in terms of biodiversity conservation and stakeholder participation.

[25] Article 169: The Secretary-General shall, on matters within the competence of the Authority, make suitable arrangements, with the approval of the Council, for consultation and co-operation with international and non-governmental organizations recognised by the Economic and Social Council of the United Nations.

[26] https://www.ospar.org/about/international-cooperation/collective-arrangement

- The ISA Mandate requires that activities in the Area (Annex III, Article 17) are carried out with due regard for other activities, in particular those covered by the high seas freedoms. However, it is difficult to flesh out what provisions mean. ISA needs to be involved in establishing effective cooperation, but not just ISA Secretariat.
- A SEA process/development of REMPs brings in the other stakeholders—including adjacent States and distant States, and activities and provides interface between them. This is one of the key requirements for a REMP.

Who could/should be responsible for developing regional cooperation?

- Such cooperation may require a non-sectoral mechanism, *i.e*. ISA may not be the right body to facilitate a mechanism where all organisations are represented on an equal footing. A problem of interacting with private companies such as those laying cables remains. Perhaps ISA REMPs can create clearinghouse mechanisms for relevant information from the regions. Clearinghouse mechanism could act also as platform for communication with stakeholders. ISA could also provide a convening function for relevant parties to discuss and come to resolution, without taking a direct regulatory role in the matter.
- ISA should actively seek input from other users and stakeholders within and beyond the regions for developing the REMPs rather than wait for an adequate collaboration process. An adequate stakeholder consultation process must ensure a level playing field and full participation using various approaches, based on top-down, and bottom-up stakeholder identification and invitation processes, best formalised in a legal document.
- Rather than seeking only the involvement of the secretariats of the various international organisations, State representatives, civil society representatives, coastal States, science, and Indigenous Peoples and local communities with relevant traditional knowledge and uses of the affected marine spaces have to be addressed.
- In the ISA, a competent organ for stakeholder identification and communication has to be identified. The establishment of an environmental or scientific committee as a new subsidiary body under Part XI LOSC and the Agreement could/should have the standing capacity to undertake all complex REMP-related activities in a transparent manner.

How could use conflicts be addressed?

- When dealing with use conflicts, the protection of nature should be viewed as an overarching priority. ISA was not seen as competent to assess the overall long-term environmental effects of pollution caused by Activities in the Area. Although the definition of the regions may extend to the wider ocean basins this could be better hosted under the future BBNJ Agreement.
- Secondary rules for some form of conflict resolution mechanism may be needed. Could be a possible role of the ITLOS Seabed Disputes Chamber; however, several parties may not feel bound to the advice. In addition, it has to be ensured that civil society is also able to bring complaints on behalf of humankind.
- In addition, submissions may eventually be made by State parties to the future BBNJ COPs, which may establish a process *e.g*. via a compliance or implementation committee.
- In the ISA, a compliance or implementation committee may be implemented as a sub-organ of the Assembly.

- An early warning mechanism may also help as a method of addressing/resolving potential conflicts in uses.

Group 3: How can the ISA deal with data gaps and uncertainties relating to ability to predict cumulative impact and to predict use conflicts?

What are the most important areas where data gaps are critical e.g. *to determine cumulative impacts or use conflicts?*

- Inactive vent sites and related SMS deposits;
- Distribution of sensitive habitats / species, *i.e*. what are the vulnerable marine ecosystems and the indicators of those?
- Need to capture all known uses (*e.g*. map to show fisheries, cables [current and future], shipping, *etc.*) and identify overlap in the high seas/international seabed area, including from multiple seabed mining;
- Need to know all (significant) impacts;
- Spatial and temporal scales of species' connectivity are a gap.

Is the ISA database useful?

- It exists and it is open, but it is not functional;
- Need for GIS maps to show where we don't know things (*e.g*. we see predictive habitat maps but is an extrapolation. It would be useful to correlate contractor data with data and maps generated by the scientific community.

Should the contractors be obliged to fill some or all gaps?

- Thinking about vents, could the contractor show how their mine site sits within the larger area? *E.g*. could contractors set aside seamounts within the contract areas?
- If there is a requirement for contractors to work outside their contract areas, this should be identified in a stepwise approach within the REMP. For example, it could be considered to making it a condition of an exploitation contract to study APEIs some years (3 to 5?) after commercial production in order to help build knowledge over time;
- It was suggested that the UN Decade of Ocean Science could be very helpful in focussing deep ocean research to filling the gaps in regional knowledge? It might help if the ISA could communicate some of the gaps that need to be specifically addressed to feed into related national research calls?
- However, a REMP process should not aim at having all the answers. The REMP process should identify data gaps, uncertainties, *etc.*, and prioritise the most important issues. This could be done through workshops;
- There is a need to promote research into cumulative impacts and which effects are important to measure (need to prioritise). Cumulative impact studies could start at exploration phase. There is a need to understand the scale of an individual mining operation in the first place and the only way to do that is to systematically measure over time the impact area and outwards *e.g*. in concentric rings (*e.g*. oil and gas industry) out from impact source.
- Suggestion that Member States / contractors work on remote monitoring (focus).

4.3 Presentation: Technical and scientific contents of REMP – What should be included – from REMP template

Sabine Gollner, NIOZ, and Sabine Christiansen, IASS

When moving towards standardising the establishment, implementation and review of REMPs in the Area, it is crucial to establish a common set of key features of a REMP, such as how the respective regions are defined, which information is collected and what types of measures are to be considered. The draft workshop document called `Template´ (see Annex I) sets out such minimum requirements; which should be instrumental to developing the individual regional management plans more transparently, provide for a more reliable and predictable output, help avoid use conflicts as well as predominance of particular interests. Here, the main contents and reasoning are presented.

The template starts with two sections setting out the purposes and objectives, and the principles, respectively, which shall be valid for all REMPs in the Area (see further Section 3 of this Workshop Report). Section 3 of the Template comprises all of the technical and scientific details to be elaborated and agreed for each of the regions. The region of application of the plan has to be detailed (3.1), environmental baseline information and all available information on other uses have to be provided (3.2). Section 3.3 addresses the management measures to be developed from the information collected on the regional environment in order to translate the mandate of Article 145, into regional action.

As such, REMPs are a precautionary action implementing the ecosystem approach to management of human activities to ensure *à priori* that individual and cumulative environmental effects of the activities enabled under a new framework will not undermine the achievement of pre-agreed overarching and conservation goals and objectives or impair ecosystem services. Therefore, the means for transparent, accountable and informed-decision making have to be created through

- Establishing a broad knowledge base, including stakeholder knowledge (Template 3.2.1.1-7)
- Compiling a State-of-the-Art Regional Environmental Report (Quality Status Report) including and assessment of past, present and future risks and impacts on biota and ecosystem functions and services (Template 3.2.1.8)
- Use the above to determine uncertainties and gaps, need for further investigation – or determine measures, if confident enough.
- Improving the legitimacy and support from stakeholders by setting up formal, transparent stakeholder interaction and a clearing house mechanism.

Fig. 1 below illustrates how the different elements of the proposed Template interact.

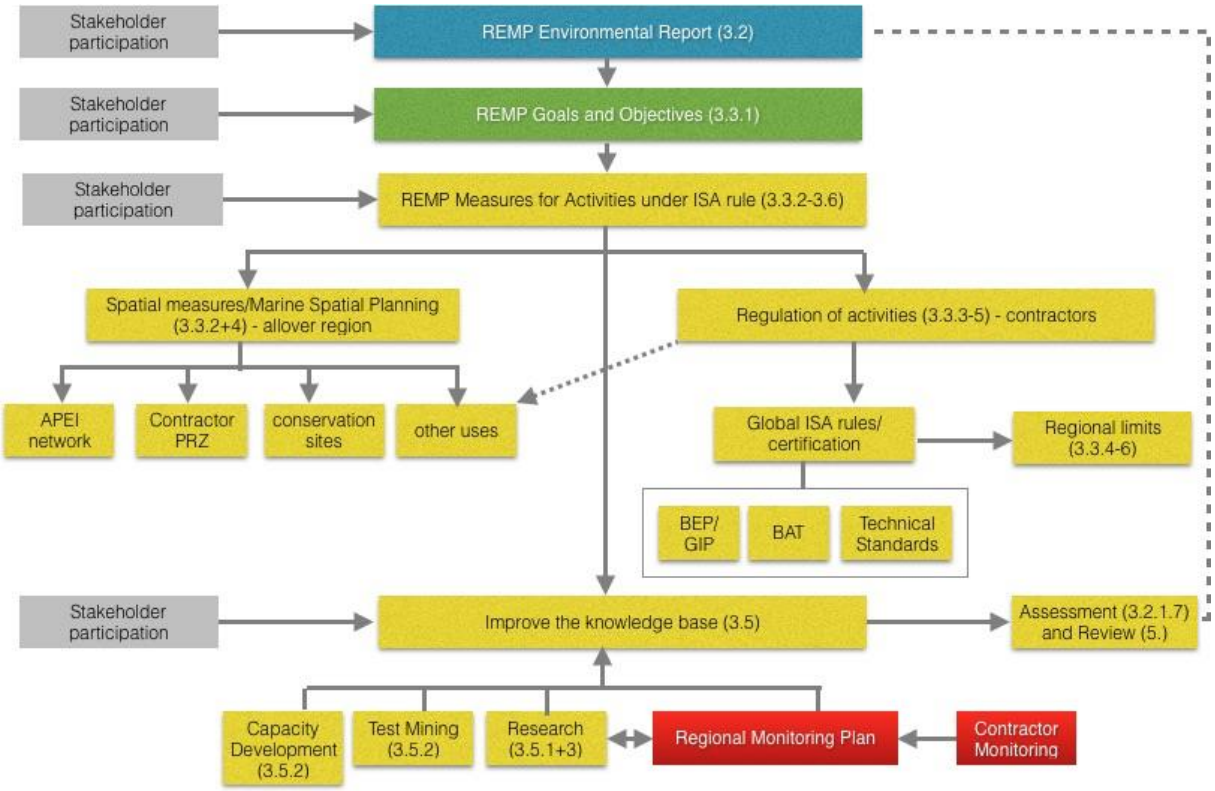

Fig. 1 Schematic flow of elements in the REMP Template (sections referenced in brackets). The blocks in red are currently missing from the template. Stakeholder participation was added.

One missing element in the proposed Template is a section that requires a Regional Monitoring Plan, setting out long-term, regular standard sampling and assessment, which will allow to improve the long-term knowledge on the shifting baselines of the region, activities within the region and influences on the region. It will also enable the early alerting of adjacent coastal States and other stakeholders if mining causes problematic emissions (contaminants, sediments), degradation of habitat or transboundary effects.

Discussion

The question was raised why archetypical species are highlighted in the REMP Template document as an essential element? These were basically unknown for contractors, and can therefore not be used for the environmental baseline description. Answer: The wording was taken over from the ISA Secretariat Guidance document, as only one of several requirements, and may be overstated.

Another participant emphasised the establishment of regional monitoring plans as a precondition for assessing the type and scale of eventual effects from mining in relation to a shifting baseline.

4.4 Presentation: Spatial determinations in REMPs

Daniel C. Dunn, University of Queensland, Australia

Systematic (spatial) conservation planning is well known[27] and widely applied. As such, there is no need to reinvent the wheel. The relevant stages of such planning comprise six stages, starting from data compilation on biodiversity, identification of conservation goals, and review of existing conservation areas to determining additional conservation areas, implementing conservation actions and actions to ensure the maintenance of the values of the specific region. Criteria for selecting areas in need of conservation are available and are globally applied, as a review of 20 initiatives demonstrated, which showed the recurrent use of a suite of ecological criteria, among which "representativeness" and "threatened species" were most frequently used.[28] These criteria are reflected also in the CBD EBSA "Azores criteria and guidance for identifying ecologically or biologically significant marine areas and designing representative networks of marine protected areas in open ocean waters and deep sea habitats".[29] This suite of criteria is again very similar to those applied by other international organisations such as the FAO guidance for vulnerable marine ecosystems, VMEs, the IMO with respect to PSSAs, or UNESCO for World Heritage Sites. Also, the steps to be taken and the criteria to be employed for the design of a representative network of protected sites are well known and globally accepted: 1-selection of a biogeographical approach; 2-identification of known ecologically or biologically significant areas; 3-iterative site selection; and 4-consideration of ecological coherence (*e.g*. ecological connectivity and viability) (CBD Decision IX/20 Annex III).

These criteria and principles have been employed in the design of the CCZ Environmental Management Plan (ISBA/17/LTC/7), confirmed and substantiated by the participants of the Szczecin workshop[30], and used for the design of APEI network options for the Mid-Atlantic Ridge.[31] In the latter case, the efficiency of different network options to reach the conservation goals was evaluated based on the data available. Lessons learned included that because of the need for buffers around APEIs, larger APEIs will more efficiently meet any area target than smaller APEIs. Climate change can be incorporated into the considerations in several ways but needs more thought.

The overall message is that systematic conservation planning, as it should be done when developing a regional environmental management plan, REMP, in the Area, is not new territory, but experiences exist throughout the world in national and regional context. The basic truth is that “you can’t manage

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[27] see *e.g*. Margules, C. R. and Pressey, R. L., 2000. Systematic Conservation Planning. Nature, 405, 243-253. http://dx.doi.org/10.1038/35012251

[28] Gilman, E., D.C. Dunn et al. (2011) Designing criteria suites to identify sites and networks of high value across manifestations of biodiversity. Biodiversity and Conservation 20(14):3363-3383.

[29] https://www.cbd.int/doc/c/cae6/31af/dbda22c3581cc6074cde8784/ebsa-ws-2019-01-azores-brochure-en.pdf

[30] International Seabed Authority, 2019a. Developing a framework for regional environmental management plans for polymetallic sulphide deposits on mid-ocean ridges. Report of the second workshop held in Szczecin, Poland, 27-29 June 2018. International Seabed Authority, Technical Study No. 22, Kingston, Jamaika, pp. 1-32.

[31] Dunn, D.C., et al., 2018. A strategy for the conservation of biodiversity on mid-ocean ridges from deep-sea mining. Science Advances 4 (7), 1-15.

what you don't measure"- quantifiable indicators of performance are needed. A scientifically sound and robust framework exists for developing spatial conservation under poor knowledge conditions. However, the related APEI design criteria need formulation in a single coherent document.

Discussion

A participant questioned that the protection of 30 % of the pristine deep seafloor could be enough to prevent biodiversity (species, habitats, ecosystem function) loss. Historic experience shows that the human impact has always been underestimated. Therefore, 30 % protection is not enough. Answer: APEIs can only be one element of the spatial measures suite as well as rule-based measures.

A comment indicated that *e.g*. in OSPAR the criteria for MPA networks were made on the assumption that other measures would provide for sustainable use of the remainder. Are there thoughts about supplementary spatial measures? Answer: APEIs very similar to other site protection measures, and should be cross-sectoral in scope. Searching for filling the gaps in the CBD network of MPAs, or *e.g*. the 30x30 network of ABMTs[32] as discussed in BBNJ context, APEIs would certainly become a first choice. Most sectoral closures are not MPAs because of a lack of competence of the body responsible. In a more holistic future regime, APEIs as well as VMEs need to be holistic and binding.

Another participant considered the definition of "Important Areas" as being too narrow. It was asked whether exceptional ecosystems were included, such as hydrothermal vents and other structures that rise from the seabed? The representative approach to APEIs does not really fit to those. Rather than going for 30% - wouldn´t it be more appropriate to focus on protecting 90% and just leave 10 % for mining? Another issue is the dynamic nature of the pelagic ecosystems overlaying the seafloor - how could that be captured in such a network? Answer: This emphasises the need for supplementary measures to APEIs. These measures need not all be in a REMP; it can also be taken forward by contractors.

4.5 Working Groups

The participants split into six World Café table groups. Two tables discussed on set of questions each, participants rotated after 30 minutes. Each table had a moderator and a rapporteur. The results, thoughts and suggestions were reported back to plenary and form the basis of this summary of suggestions made by the participants.

4.5.1 Regional Environmental Assessment (3.2.): Is it required? Room for improvement of the suggestions in the Template 3.2. (in particular 3.2.1.8.)? How to deal with data gaps (see Section 3.5 – strategy of enhancing knowledge and cooperation)?

Some structural changes were proposed to better fit the Template document to its desired purpose:

- The title of Section 3.2.1 should not be "required baseline info" – under 3.2 Regional Environmental Assessment, all of the environmental data collection and description (see

[32] https://www.greenpeace.de/sites/www.greenpeace.de/files/publications/20190404-greenpeace-report-30x30-meeresschutzgebiete-engl.pdf

below) should be moved to an Annex, to only include the actual assessment in template. Risk assessment (now 3.2.1.7) would then be the new 3.2.

- Sections 3.2.1.1 to 3.2.1.6 are descriptive and should come under one heading. As for the baseline studies and data needed, the elements listed here should act as a placeholder until a first assessment indicates which environmental data are essential, meaningful and measurable (perhaps tackled by small scientist group);
- 3.2.1.8 This is assessing the management and should follow 3.4; wording should be ”to ensure protection of the marine environment and meets objectives of the REMP";
- 3.2.1.4 Adjacent EEZ data can be included.

Regional Environmental Assessment (3.2.): Is it required?

As regards the overall necessity for a Regional Environmental Assessment, there was overall agreement. However, the `who, how, and what´ need better clarification. One option could be that Strategic Environmental Assessments could be led under BBNJ in coordination with the ISA. In any case, and with mutual benefit from such processes within EEZs, a best-practice approach to regional environmental assessment could emerge, which could also become best practice standard for coastal States.

A phased approach to regional assessment was recommended, and it was suggested that contractor assessments might be an essential element, as the smaller the scale, the more detailed it can be. As to the inclusion of other uses, the practice will have to be developed. In order to develop the contents, a working group should be set up to identify a useful range of priority parameters for assessment, for not overloading it.

The possible funding of a systematic regional environmental assessment was discussed, and it was suggested that according to the Advisory Opinion of ITLOS, (2011)[33], the sponsoring State has also financial obligations with respect to Environmental Impact Assessment (of an operation sponsored), which might extend to a REMP. Given this applies to all present sponsoring States; it remains open as to what the obligations of new entrants would be.

Suggestions for improvements of the Template 3.2. (in particular 3.2.1.8.)?

The participants raised some specific questions and suggestions to be considered when reviewing the Template document:

- What are the measures other than APEI?
- What are the habitats / types of habitats that we want covered?
- Issues around archetypical (keystone?) species were discussed? So far there is no process in ISA or elsewhere how to decide and agree on those;
- Consider other types of connectivity (*e.g*. migratory connectivity);
- Need to consider that we do not have distribution models for all species – may need to use indicator species or some higher taxonomic level of species;

[33] ITLOS, 2011. Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Case No. 17, Advisory Opinion (ITLOS Seabed Disputes Chamber Feb. 1, 2011), at https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/adv_op_010211.pdf

- 3.2.1.5 insert the words “or knowledge” after “heritage” - insert “culturally important migratory species” after the word “remains”;
- There was a suggestion to delete 3.2.1.7 for now – leave it to the next phase (when there is one contractor and the issue becomes real). Some felt it should not be removed – seemed to be a question the right wording and of timing – bring it in at the right time.

How to deal with data gaps (see Section 3.5 – strategy of enhancing knowledge and cooperation)?

The coordinating role of a Strategic Plan (for developing REMPs) before developing REMPs was highlighted - such Strategic Plan should be part of the process of developing an REMP. However, some participants feared overregulation in advance of mining to take place. Others considered that a Strategic Plan should be part of the REMP, rather than an overarching document.

Establishing a comprehensive collection of the knowns and unknowns in a region has to be at the start of designing a REMP. The publically available information must include the baseline information collected by the contractors in an understandable form (not only data). It was said that this will give a solid foundation of what is there and how it will be affected by operations. A solution may have to be found to combine the contractor data in the ISA database DeepData with other scientific data.

Information collection should be followed by a gap analysis (3.2.1.1) and prioritisation, to be laid down in a strategy and work programme (3.2.1.1?) to fill the gaps. In that line, under 3.5.1 `future research plans´ `address uncertainties´ should be added after `minimize current data gaps´ and where there are higher levels of uncertainties – apply precautionary approach.

Given the prevailing knowledge gaps the need for precautionary decision-making and the importance of following the management cycle, including adaptation of the REMP, was considered.

The role of and the need for test mining was discussed. The need for all contractors to perform (monitored) tests was debated. It was emphasised that rather than testing mining systems, equipment testing was more realistic, delivering information for developing Best Available Technology standards.

4.5.2 How should REMP regions be defined (3.1.)? Do we need region specific goals (3.3.1)? What kind of region specific goals could be expected? What could be performance metrics (3.6.) against which the effectiveness of the REMP can be measured?

How should REMP regions be defined (3.1)?

The participants made a couple of suggestions: First, consideration should be the biogeographic provinces, pelagic as well as benthic, within or across the region. A REMP might extend across different provinces and include a range of features, or have multiple biogeographic subunits. Connectivity patterns might be indicative of this. The second consideration relates to the distribution of the mineral resources, and therefore the likely limit to mining contracts. Resources and biogeographies often align. Other natural values around the resources have to be considered as well as the limits of competencies of existing organizations (RFMOs, *etc*). The extent of the region and environmental assessment of the REMP should not be limited to ABNJ, certainly not by the extent of

contract areas, but include adjacent EEZs. In any case, the scope of the REMP should not be constrained by mineral type – one REMP should cover multiple mineral types.

The question was raised and remained unanswered, as to whether simple lines are preferable to more complicated polygons. It was suggested that the boundaries of a region might also be reviewed every 5 years as more is learned about biogeographies and other specifics of the region. Generally, an ISA Guidance document was recommended to give advice on factors to be considered to determine region for an REMP.

Do we need region specific goals (3.3.1)? What kind of region specific goals could be expected?

All of the tables highlighted that the hierarchy of overarching global goals-regional objectives-targets was important and should be followed. Therefore, 3.3.1 should read "Region-specific objectives and targets".

- Region-specific objectives and targets set important priorities (indicators) for measurable achievements (SMART performance metrics);
- Region-specific objectives and targets need periodic adjustment in light of the effects of global warming *e.g*. on the distribution of species and uses such as fishing;
- The regional objectives could include *e.g*. resource specific objectives, EBSA specific objectives, set out objectives for the protection of certain habitats (active vents), VMEs, and must link back to overarching ISA goals;
- Also, the procedural-related goals (*e.g*. better cooperation, sharing of data) need specific objectives and targets, *i.e*. to get buy-in by x international organisations within x years.
- Temporal and spatial scale and detail of knowledge is important: Management measures might differ within a REMP;
- Proposals for globally applicable strategic environmental goal and objectives have been elaborated in Tunnicliffe *et al.* (2018)[34];

What could be performance metrics (3.6.) against which the effectiveness of the REMP can be measured?

- Indicators and measurable metrics have to be identified from baseline studies to design useful (*e.g*. SMART) targets, and measures.
- A good environmental description is essential to develop suitable targets and metrics. However, baseline data is collected at contractor level not regional level;
- Over time, monitoring might enable the assessment of management effectiveness. It was highlighted that a standardised REMP procedure and template needs procedural safeguards/enforcement;
- The performance metrics could include the protection of a certain percentage of vulnerable areas;
- Contractor Plans of Work need to be coherent with the REMP and deliver on the indicators and against the thresholds identified.

[34] Tunnicliffe, V., Metaxas, A., Le, J., Ramirez-Llodra, E., Levin, L.A., 2018. Strategic Environmental Goals and Objectives: Setting the basis for environmental regulation of deep seabed mining. Marine Policy. 10.1016/j.marpol.2018.11.010

4.5.3 Management measures (3.3.): What kind of spatial measures are required? What types of temporal or seasonal restrictions or measure for the protection of specific communities could we expect? Consider 3.3.2, 3.3.4 and 3.3.5. – room for improvement of the suggestions in template?

Participants concentrated on providing suggestions for improvement the REMP Template sections.

Some general remarks

- Participants felt the need for guidelines, including a roadmap, for the collection of and standard monitoring concerning environmental baselines. A mechanism is needed to take into account changes of the mining plans over time in relation to the REMPs.
- REMPs should include the monitoring of plume distribution. This could create an incentive for contractors to reduce the plume.

Area-based management (3.3.2)

- The definition of marine protected areas, MPAs, needs clarification as a number of questions were raised as to the coexistence and overall conservation force of MPAs vs APEIs and actually whether 3.3.2.1 and 3.3.2.2 are the same thing? APEIs should have a permanent status.
- It must be made clear where and how existing protected areas under other jurisdictions / areas protected for other activities are incorporated.
- The process for designation is distinct from the legal decision to implement. The designation should be proactive process – not defined around existing contracts. Protection implies a management plan, enforcement measures *etc.*, as well as location on map
- The size of the total area protected within a REMP region – APEIs, MPAs VMEs etc., including PRZ should be indicated. Then, EMMPs of contractors can evolve overtime as the REMP goes into operation.
- Other site- or species-specific measures should be included, and water column, including migratory corridors and stepping stones considered;
- Indicator species and processes for measuring the state of the environment and “VME” indicators in relation to deep-sea mining have to be established;
- Criteria and thresholds have to set precautionary limits. They should be operational and effective; however, this is a major scientific challenge. CCAMLR has examples in this regard.

Preservation Reference and Impact Reference Zones (3.3.2.3)

- So far, there is no guidance the designation of PRZs and IRZs. These were needed already in the initial phase of exploration but should not necessarily be included in the REMP guidelines. They could however be standards or guidelines in relation to the Exploitation Regulations. However, the question whether such guidance needs to be site-specific. At least, it is different for different resources;
- Others felt that IRZ / PRZ are part of contractor EMP (with monitoring focus) and no reference should be made in REMP;

- However, others saw value in including a process for defining some sort of additional conservation areas in claim areas, or be the first areas for relinquishment. This could be voluntary for mining contractors.

Determination of mining areas (3.3.3)

- The current text should be modified to say "within the REMP area" instead of "within a contract area". Yet, there is a need for spatial measures also within the contract areas.

Seasonal or temporal restrictions (3.3.4)

- Temporal management may be interesting and should be included, and may need provisions elsewhere *e.g*. Exploitation Regulations to implement
- Likely to be particularly affected by uncertainty, as almost no data exist on seasonal changes in species distribution; and there are no vertical data. But monitoring will improve knowledge base;
- Spatial restrictions in the water column should be defined based on water bodies and current behaviour. Eddies and their effect on plume dispersal have implications for management measures. The same is true for migratory species like whales and birds. One might need to stop mining.
- There is the need to think about daily / nightly controls for mesopelagic migratory species.
- Available traditional knowledge of indigenous peoples and local communities about culturally important migratory species can inform temporal / seasonal measures.

Restrictions of impacts on specific communities (3.3.5)

- The word `any´ should be removed;
- `Communities´ is wrong word: Needs to include habitats, areas of scientific value/interest, areas of cultural, social importance *etc*. This requires a term, likely other than `Sites in need of protection´.

Open issues

- How do we incorporate areas (or times) with potential important cumulative impacts
- Do we need to protect areas with connectivity functions? These could be adapted APEIs, but may follow different rules (*e.g*. don't need to be so big, don't need to be same shape).

5 Giving Effect to REMPs

5.1 Presentation: Giving REMPs Effect

Hannah Lily, The Pew Charitable Trusts

Hannah Lily's presentation followed the workshop paper on 'Legal Force of REMPs' – for more details, please see this paper at [Annex III].

UNCLOS provides for different types of ISA instruments, such as 'Rules', 'Regulations', 'Procedures', 'Policies', and 'Decisions' (but not 'Plans'). It is important that all stakeholders are clear specifically

which type of instrument a REMP is, in legal terms. This status will dictate by what process a REMP can be adopted, whether and upon whom it is binding, and what are the ramifications of non-compliance. The CCZ EMP appears to be a Council Policy, given some degree of binding force by way of a Council Decision. This approach could be followed for future REMPs, but there are disadvantages of spreading the REMP across two separate documents, and giving it force by way of a Council decision that has a short-term outlook only. The CCZ EMP method also focusses on the adoption of a REMP after it has been written, and so does not contain stipulations for required procedure or content in developing or reviewing the REMP. This could lead to inconsistency, inaccuracy, or incompleteness across different REMPs. The CCZ EMP example additionally fails to set clear roles and responsibilities for different parties (*e.g*. ISA organs and ISA contractors) in developing and implementing REMPs, nor sanctions for non-compliance. A better approach which would address those issues could be to adopt a REMP as a Council policy, in combination with making rules for REMPs in ISA Regulations.

5.2 Working Groups

For discussions of one hour, the participants split up in five working groups all of which addressed the following two questions:

1. Do you see REMPs as an instrument that should guide ISA organs, or as an instrument that should bind ISA organs? Should the LTC be prevented from recommending the approval of a plan or work if it finds it to be inconsistent with the applicable REMP?
2. What do you think is the most appropriate means to give legal effect to REMPs? Are there any options in the workshop's paper that you don't agree with? Or any options that are missing?

5.2.1 Do you see REMPs as an instrument that should guide ISA organs, or as an instrument that should bind ISA organs? Should the LTC be prevented from recommending the approval of a plan or work if it finds it to be inconsistent with the applicable REMP?

With respect to the first question, all five working groups reported back that a significant majority of participants had favoured a legally-binding or controlling effect. Some groups noted that the question should no longer be "*whether REMPs should have binding effect*", but rather "*whether there is an effective and robust compliance regime for REMPs*". There was widespread agreement that REMPs should bind all organs of the ISA, and general agreement that REMPs should also have legal effect on sponsoring States. There was insufficient time to discuss how REMPs could bind sponsoring States, but one group explored whether a sponsoring State's due diligence obligation required the State to verify that any application made by its sponsored contractor conforms to the applicable REMP. There was general acceptance that REMPs must apply to contractors, and contractors should ensure their applications for Plans of Work are in conformity with REMPs or otherwise risk the possibility of it not being approved. Further, the EIA, EMMP and Closure Plan prepared by the contractors, as well as the terms in the contract itself, should include explicit references to give effect to the applicable REMP. There was also some discussion on whether REMPs should have retrospective effect, and the majority of the groups reported back that REMPs should apply to existing contracts as well as future ones. Some groups observed that it is imperative that the content

of the REMP can change without requiring alteration of ISA regulations, as that may be a difficult and time-consuming process. Other groups also considered that there might be some parts in REMPs (*e.g*. management measures) that should be mandatory and specifically obligatory, but some aspects that could be discretionary (*e.g*. operational requirements). One group recorded the opinion that if there is no agreement at Council as to the legally binding effect of a REMP, a request for an Advisory Opinion for ITLOS may be considered as a last resort.

As a whole, most groups discussed the potential repercussions of a REMP having a non-binding effect. Although there were some opinions that a non-binding effect could result in more aspirational outreach, the majority view was that the possibility of a REMP with no binding effect being ignored or disregarded in decision-making was quite high. As such, a REMP should be more than a guidance or policy instrument. In the end, all groups recorded the general view (albeit no full consensus) that the LTC/Council should be empowered to disapprove (in the case of the LTC, to recommend the same) a Plan of Work if it finds it to be inconsistent with the applicable REMP. Two groups also discussed the need to have a dedicated subsidiary organ that deals with environmental and scientific matters. This would ensure that the ISA has the right expertise with respect to environmental decision-making. Finally, there was an overwhelming consensus in all groups that the status of a REMP should be made clear to all stakeholders from the outset, and this is a pressing matter that needs to be clarified very soon.

5.2.2 What do you think is the most appropriate means to give legal effect to REMPs? Are there any options in the workshop's paper that you don't agree with? Or any options that are missing?

As to the second question, there was discussion that if REMPs were to be non-binding, it should take the form of a stand-alone policy document. However, since a high majority preferred the view that REMPs should be legally binding, several options were discussed. Most participants favoured a combination of the options, which are:

a) **Council decision**: Include the actual REMP details

b) **Exploitation Regulations**: Can give legal effect *e.g*. by including provisions that require the LTC to not approve any Plan of Work in APEIs or in regions without a REMP

c) **Standards**: Global standards *e.g*. on plume management could go into ISA Standards to avoid `cluttering´ REMPs with too much detail

d) **Guidelines**: Can support Standards

There was some discussion as to whether REMPs should be governed by a separate, designated set of regulations on its own. While most agreed that this would be ideal, many felt that this would be unrealistic because there is a lack of political will to have a separate set of regulations for the environment. Further, if this avenue was pursued, it would take a longer time for the new set of regulations to be designed and adopted, given that the draft Exploitation Regulations are already in an advanced stage. Thus, a combination of the options above, including the need to amend existing exploration regulations to include references to REMPs was seen to be a more feasible approach. However, one group noted that REMPs should be stand-alone regulations or some similar form of

binding instrument, possible even emanating from the Assembly, because a REMP is beyond only just the Exploitation Regulations and also applies outside the Council (*i.e*. extends to all Member States).

6 Procedure for Developing and Reviewing a REMP

6.1 Presentation: Procedural aspects: Development, Approval and Review of REMPs

Harald Ginzky, UBA, and Pradeep Singh, IASS

As REMPs are a core instrument to ensure the effective protection of the marine environment, the procedures for their development, approval and review must be standardised. The advantages of having a standardised procedure include uniformity across all REMPs, having a dedicated body to take charge of the process, ensuring the involvement of all relevant stakeholders, clarifying all responsibilities and accountabilities between all actors, allowing for reliable and predictable outputs, and overall increase in acceptance and legitimacy. Thus, there are strong justifications to have all three stages of the REMP process – the development, approval and review stages – standardised. This presentation offers some proposals for the respective stages.

With respect to the development of REMPs, the Council always initiates the process by deciding that a REMP is necessary for a particular region. Any Member State of the Authority, the LTC, the Secretariat, or Observer Member may notify the Council of such a need for its consideration. Once the Council makes a decision that the creation of a REMP is necessary, four options ensue. First, the Council shall direct the LTC to design the REMP with the assistance of the Secretariat. Second, the Council, acting on the recommendation of the LTC, establishes an expert body to design the REMP. Third, the Council, based on direct nominations made by Member States, establishes an expect body to design the REMP. Fourth, presupposing that a dedicated 'Environmental and Scientific Committee' (or ESC) is deemed necessary for environmental-related matters and established as a subsidiary body to the Council, the Council will entrust the design of the REMP to the ESC. While the first option is the current manner in which REMP development is envisaged (see Secretariat's Guidance Document), the other three options help ensure that that a dedicated body with environmental expertise takes charge of the REMP development process.

The dedicated body will be charged to conduct stakeholder mapping to determine the relevant actors, conduct consultation with third parties, convene workshops and select participants, prepare a draft REMP and receive public comments. Under all options, the Secretariat continues to play an administrative role and facilitates the process by providing the necessary assistance and support. Under the first three options, the LTC retains the power to consider the draft REMP and make an appropriate recommendation to the Council, whereas under the fourth option, this will be the task of newly created ESC.

Once a recommendation is made to the Council, the Council shall, based on the recommendations by the LTC or ESC, determine if the REMP has adhered to the standardised procedure with respect to the development stage prior to approving it. It shall then determine if the REMP is ready for adoption. If the Council determines that more work or steps are to be taken, the Council shall revert

back to the LTC and ESC, as the case may be. The LTC or ESC may further revert back to the expert body for further attention. This process shall be repeated until the REMP is ready for adoption.

The final stage, the review of the REMP, shall also be standardised in order to ensure that each REMP is up-to-date and remains pertinent. This stage entails two approaches. First, there should be annual reports on the REMPs, whereby new environmental data submitted to contractors as well as new scientific knowledge pertaining to the region is summarised. This step should be conducted by the expert body responsible for the REMP design (if established) with the assistance of the Secretariat. Second, each REMP shall be subject to a periodic review, *e.g*. every five years or earlier if requested by the Council. Early trigger events include the occurrence of significant unexpected harm and issuance of an emergency order, a major change or new discovery in scientific understanding, the relinquishment of areas previously under contract in the region, or an application for a new type of resource in the region.

Discussion

The main comments pertaining to the presentation were:

- That the role of the Secretariat was not sufficiently addressed in the presentation and this should be better clarified – that the Secretariat should play an administrative role and help facilitate the work of the expert body/group;
- That financing the REMP development and review process is an important question that requires more thought; and
- What would be an appropriate size for the expert body/group, and how will it represent widespread expertise and experts working in the area?

The responses to the comments were that: (i) Although not clearly highlighted in the presentation, the Background document makes clear that the Secretariat continues to play an administrative role, albeit not a controlling role, in the development and review process; (ii) that financing of REMPs was highlighted as a critical matter for thought and it is hoped that the World Café discussions will explore this further; and (iii) that a size of between 4-6 persons with scientific and technical expertise would be ideal. All of these comments were raised and dealt with again in the World Café Session that followed (see report Section 6.6).

6.2 Presentation: REMPs - Data Gathering and Use: Scientific Needs

Cindy Lee van Dover , Duke University, USA[35]

Gathering deep-sea data to inform regional environmental management is an expensive enterprise (US$100K+ per day for ship time alone), and organising an academic expedition may take years from initial planning stages and funding raising to getting on a ship's schedule in the right part of the ocean. And, once the field campaign is complete, there is usually one or more years of sample processing and analysis before validated data sets and scientific interpretations can be published. Further, a field campaign for deep-sea biology takes place at a very local scale rather than a regional scale. Given the expense and logistical challenges, academic-industry partnerships are effective means to develop deep-sea data sets. Such partnerships through the past decade or so have already resulted in more than 100 peer-reviewed publications related to the biology of the seabed in the Area. An optimal path to deliver this new knowledge to decision makers at the International Seabed Authority remains to be developed.

In the absence of high-resolution biological data sets, scientists turn to global, georeferenced sets of proxy data at depth (temperature, bathymetry, particulate organic carbon flux, pH, dissolved oxygen). We have good scientific evidence that high-level deep-sea ecosystem characteristics (*e.g.* biogeographic regions, habitat models) be inferred from these proxies. Proxy data sets can be collated at a regional scale and used in developing REMPs, particularly for the design of networks of APEIs. Regional scale interpretations of proxy data eventually need to be ground-truthed with strategic sampling and analysis. Finer-scale scientific studies resolve characteristics of management subunits, using, for example, genetic and hydrographic connectivity analyses and biodiversity characteristics. Metrics for monitoring ecosystem health on a regional basis remain to be established and standardised for each mineral resource.

[35] The following references have been relied upon for the presentation:

Bevilacqua, S., and Terlizzi, A. (2016). Species surrogacy in environmental impact assessment and monitoring: Extending the BestAgg approach to asymmetrical designs. *Mar. Ecol. Prog. Ser.* 547, 19–32. doi:10.3354/meps11656.

Breusing, C., Biastoch, A., Drews, A., Metaxas, A., Jollivet, D., Vrijenhoek, R. C., et al. (2016). Biophysical and population genetic models predict the presence of "phantom" stepping stones connecting Mid-Atlantic Ridge vent ecosystems. *Curr. Biol.* 26, 2257–2267. doi:10.1016/j.cub.2016.06.062.

Dunn, D. C., Van Dover, C. L., Etter, R. J., Smith, C. R., Levin, L. A., Morato, T., et al. (2018). A strategy for the conservation of biodiversity on mid-ocean ridges from deep-sea mining. *Sci. Adv.*, 1–16. doi:10.1126/sciadv.aar4313.

Evans, J. L., Peckett, F., and Howell, K. L. (2015). Combined application of biophysical habitat mapping and systematic conservation planning to assess efficiency and representativeness of the existing High Seas MPA network in the Northeast Atlantic. *ICES J. Mar. Sci.* 72, 1483–1497.

Gerdes, K.H., Arbizu, P.M., Schwentner, M., Freitag, R., Schwarz-Schampera, U., Brandt, A. and Kihara, T.C., 2019. Megabenthic assemblages at the southern Central Indian Ridge–Spatial segregation of inactive hydrothermal vents from active-, periphery-and non-vent sites. *Marine environmental research*, p.104776.

Watling, L., Guinotte, J., Clark, M. R., and Smith, C. R. (2013). A proposed biogeography of the deep ocean floor. *Prog. Oceanogr.* 111, 91–112. doi:10.1016/j.pocean.2012.11.003.

Yearsley, J.M., Salmanidou, D., Carlsson, J., Burns, D., Van Dover, C.L. Connectivity model of Mid-Atlantic Ridge hydrothermal vents. Unpublished (near submission).

6.3 Presentation: Data Gathering and Use: A Contractor's Perspective

Chris Williams, UK Seabed Resources

ISA Exploration guidelines (for environmental assessment) contain a wide range of environmental data requirements which have formed the basis of Contractor environmental baseline survey efforts. Contractors continue to put significant investment and effort into collecting environmental baseline data. UKSRL shares all environmental data with the ISA, and all analysis is published through the peer review process (open access as far as possible). Funding is constrained at this stage of industry maturity, but so is the availability of capital assets (*e.g*. research vessels) and expertise. Once revenues are being generated by commercial seabed mining, there will opportunity costs associated with research efforts versus capacity building and/or returning revenues to the Common Heritage of (Hu)mankind (CHM).

A wide range of requirements, such as exist in current ISA exploration guidelines, drives up the need for different sampling methods and scientific expertise, which drive up vessel size and time-on-station requirements. Furthermore, a huge volume of data is being generated, which must then be analysed to generate value for scientific knowledge, the ISA and contractors. In a resource-constrained environment, breadth of data requirements directly constrains sample size and statistical robustness. Given these trade-offs, it is important that data requirements are all relevant to the ISA and the Contractor's environmental management aims, and that effort is not wasted.

Contractor cooperation and information exchange are important tools in generating comparable data sets across contract areas and enabling regional-level analysis. There are good case-studies for this. Contractors could have a role in surveying and monitoring APEIs; some have already begun voluntarily. Enabling placement of PRZs in APEIs, where relevant, would increase knowledge of the parts of the network most representative of those areas of the CCZ likely to be impacted by commercial seabed mining operations.

6.4 Presentation: Regional Environmental Management Plan: A Marine Spatial Plan beyond national jurisdiction

Steven Vandenborre, Federal DG Environment, Belgium

This presentation focuses on the similarities between Marine Spatial Planning, both at international and national level, and the adoption of a REMP. From the Belgian perspective, a Marine Spatial Plan organises the spatial three-dimensional and temporal structure of human activities, on the basis of a long-term vision and clear economic, social and ecological objectives. This plan frames the coordination of decisions having a spatial impact at sea and ensures the involvement of all stakeholders.

The Marine Spatial Plan shows a lot of similarities with a REMP, as it stands now, though there are also differences (Tab. 1):

Tab. 1: Similarities and differences between main characteristics of marine spatial plans and REMPs.

Similar	Different
+ Area	- Scale
+ Ecosystem	- International/national
+ Activities	- Implementation
+ Legal procedure	- No legal procedure
+ Binding	- Non binding
+ Competent authority	
+ Stakeholders	
+ Need for data	
+ Cross-border issues	

These similarities might open opportunities to frame the REMP process along the lines of a MSP process. Elements of the Belgian MSP experience that have been touched upon during the presentation are:

- The Belgian MSP, at several stages, has been drafted with the assistance of a professional (spatial) planner (consultant). It might be worthwhile to consider the involvement of professional planners for the development of the REMP.
- The formal and informal process intertwines, striking the balance between a fixed procedure and (transparent) informal contacts and data-sharing;
- The Belgian MSP is subject to a SEA, but the added value of this tool in the REMP process is still to be discussed.
- Adaptive management is key, both for MSP as for REMP;
- The establishment of a (long-term) vision, backing (short-term) objectives, has strengthened the Belgian MSP as a policy tool;

To end, two further issues of importance for developing the REMP as a key policy tool were raised: In order to make the 'Ecosystem Based Approach' claim credible, the REMP should be binding. A non-binding REMP risks disconnecting the mining activities in the region from the objectives established by the REMP for that region. In addition, the REMP shall be coordinated/ integrated with other processes (*e.g*. BBNJ process).

6.5 Plenary Discussion

The scientists were asked about the meaning and importance of genetic models for REMPs and it was explained that genetic models give an idea of how far animals disperse which is crucial information in relation to connectivity and whether populations are connected. The current best estimate is to save

`safe places´ at least every 100 km. Genetic studies can help to further refine this estimate for deep sea species.

Another query was raised, asking what are the challenges getting data and best available science and information in a prioritised way to the decision-makers? Improvements to the currently fairly selected uptake of information by the ISA Secretariat in designing some of these REMPs are required, but previous experiences show up the difficulties. It was suggested discuss how to improve the science-policy mechanism *per se*, especially as it relates to the ISA as a whole not only the development of REMPs but also the regulations themselves. This was taken up and confirmed that there needs to be consensus on the pool of data and information which determines the starting point also for developing a REMP. Eventually, this will be done in the future by the proposed REMP committee. It was emphasised that the need to have an independent scientific body advising in different stages of the processes, made up of a pool of independent experts nominated by the parties, has been voiced to ISA by numerous Member States. Such sharing of workload would help all sides. In addition, another data sharing mechanism is needed. One way to get there might be to first identify the tasks ahead and let form follow function. A comment on aspects of an improved two-way communication with the ISA, with Secretariat and other organs was made asking for structured and prioritised interaction for not producing information chaos.

Another question addressed the problem of how to implement adaptive management, *i.e*. whether in the case of the Belgian MSP adaptations were done through an active process or whether management action was flexible. It was clarified that the Belgian MSP is designed with multiple stakeholders according to a vision-goals-6-years objectives with SMART indicators which are used to check the management success. There is no dedicated monitoring programme, but information is drawn from the different sectors. Review is triggered after 6 years, considering evident changes and issues raised by stakeholders, authorities and experts. A broad and long-term vision provides for continuity, integration of measures and policy within a holistic approach and could in the case of REMPs act as a bridge such as to the BBNJ processes. The Belgian MSP approach is comprehensive in that it also considers social and economic objectives such as protection against flooding. The benefit of having a comprehensive Strategic Environmental Assessment were emphasised and recommended to implement also in the case of REMPs to make it an integrated holistic process.

6.6 Working Groups

In this session, there were six discussion tables, with three questions. Accordingly, the format adopted was two parallel groups in the World Café style. Each table had a moderator and a rapporteur. The results, thoughts and suggestions were reported back to plenary and form the basis of this summary of suggestions made by the participants.

The three questions were:

1. What are the appropriate roles of the LTC, the Council, contractors and civil society in the whole process from the development, to the approval up to the review phase? Are the roles appropriately addressed in the Procedure document?
2. How could the REMP procedure ensure that data are sufficiently gathered and made available, continuously updated, and fed back into the REMP review process?
3. How could a REMP committee support the process? Is it needed? How should it be established?

6.6.1 What are the appropriate roles of the LTC, the Council, contractors and civil society in the whole process from the development, to the approval up to the review phase? Are the roles appropriately addressed in the Procedure document?

With respect to the first question, there was the general view across the World Café tables that it would be necessary to have a REMP 'Steering Committee', but the LTC has a role to play as well. There was no consensus if there should be one steering committee for all REMPs, or one for each REMP. The reason is because there might be different expertise involved before different resource type and different regions. It was observed that there is a need for consistency across REMPs – and this could be issue if every REMP committee is differently composed. However, it was pointed out that the REMP Template, as well as the LTC/Council could provide necessary oversight to ensure consistency.

As a first step, Council needs to provide clear instruction as to who is running the REMP process: LTC, Secretariat, or a new committee. While having an expert committee has benefits, funding is a critical issue – who finances this as it can be quite a costly affair? Realities have to be considered, but in this case, also the capacity of the LTC to carry out this task. It is overworked and may lack expertise. One table highlighted the current practice that it is actually the Secretariat that is driving the REMP development, with help from consultants, but this process is clearly not transparent. Therefore, the prospects of having an expert body created under the purview of the Council, is an attractive one. The expert body can be proactive and consult with stakeholders, prepare a skeletal draft, and then convene workshops with a broader group of stakeholders to take the process further.

The role of contractors in the REMP development process is unclear. There was general consensus that contractors should be involved (*i.e*. provide data, consulted for opinion), but should not control the process. One possible way to finance REMP development is to pool money from contractors, but this may lead to the perception that contractors are exerting undue influence. Thus, there needs to be clear TOR, the involvement of independent experts, and the REMP Template. The current process of the convening of workshops needs to be improved, including selection process and agenda-setting. The role of the Assembly should also be clarified, because it is diminished somehow in the REMP development process; it should not just be a rubber-stamping body.

The world café tables also reported that the process described in the Procedural document is logical. One comment was that it should be made clear that the Secretariat continues to play an administrative role throughout the REMP development and review process, and not just in workshops. The need for an environment or scientific committee was also raised, including thoughts that this committee can take the form of a pool of experts, and also review Plans of Work to check conformity with REMPs (in addition to develop and review REMPs). It is vital to ensure that inputs from all stakeholders are sought and duly considered in the process, although the ISA may eventually adopt a REMP that does not fully represent the interests of all stakeholders.

6.6.2 How could the REMP procedure ensure that data are sufficiently gathered and made available, continuously updated, and fed back into the REMP review process?

As for the second question, the World Café tables were able to discuss them in three parts. Starting with 'sufficiently gathered', there was an opinion that lessons could be learned from the Antarctic model, *e.g*. the Antarctic Treaty management plan has a lead party/country responsible for compiling and updating data (major data updates are 6 monthly basis) within a GIS based database. Data collected should then be compiled into a REMP background document for baseline and to identify gaps. It should be recalled that the REMP is a `living document´ and provides the basis for 5-year review using GIS mapping, models, data layers, and analysis of data layers.

The widely received opinion was that the data should not be reviewed by Secretariat or LTC alone; here, there needs to be expert body to ensure data from APEIs and contractor areas are comparable. There needs to be an expert group to think about what type of data required and who undertakes quality control. In this regard, the ISA's current capacity to manage data was also called into question. There were also opinions that there should be greater enforcement with respect to contractors and the data they are required to submit. This process needs to be more forceful and there should be repercussions for failures or underperformance. There should be open calls for assistance to help collect data: Stakeholders can assist in this process. With respect to the 'made available' part, the ISA's data management capacity was again called into question.

There were some opinions that the ISA needs to ensure that it has greater external and internal support, as well as collaboration with other bodies and databases, in order to ensure that its database is comprehensive and useful. This includes the need to allow for public scrutiny. In this sense, the database must be compatible and presented in a manner that allows for verification and validation. Moving on to the final part of 'continuously updated and fed back', the World Café tables observed that there needs to be agreement on which data types would need to be checked and included on yearly basis (*i.e*. which data is important) and the need for a specific format for processed data that could be used at workshops. There is also the need to feed data into models to visualise change. The World Café tables also considered the question of how can data be transformed into knowledge, and here, the annual reports submitted by contractors was brought into question. One group questioned on whether the content of annual reports are actually providing anything meaningful. There was also a comment on the need to ensure that monitoring data is fed back in order to ensure that indicators or metrics in REMPs can be checked. The role of the Inspectorate was also briefly discussed here, both in terms of ensuring contractors' performance in data submission, as well as conformity with REMPs. Finally, the groups also discussed the issue of data confidentiality. ISA will release contractors' environmental data but not geophysical data. There is a need for a higher-level obligation to make available all data, at least to an independent expert body, for REMP-related purposes.

6.6.3 How could a REMP committee support the process? Is it needed? How should it be established?

The third World Café tables both recorded an overwhelming response that there is a clear need for a REMP committee/body/expert/steering/advisory group. Both tables generally agreed here that the

terminology is very important for uptake at the ISA and requires significant thought. This body or group will drive the process for each particular area requiring an REMP, because of variation of expertise required, to increase transparency and to alleviate pressure on the LTC. It was noted that this process is not envisaged by the current Guidance document issued by the Secretariat. However, it was noted that this must be complementary to the LTC and not duplicate efforts. As to how such a body or group should be established, three options were discussed:

i. An **Environment Commission** created by Council. This is seen as an overarching body on environmental matters that does not have the time constraints of two meetings a year. This commission handles all generic aspects of environment, with flexible steering groups for area-specific REMPs. This ensures adequate funding for this work (meetings, data processing). State parties would nominate experts, although some participants felt it is important that the Council members decide on experts. There are already lists of experts at the UN (*e.g*. World Ocean Assessment). The selection of experts must be transparent. In any event, it was acknowledged that this is a long-term prospect, which, however, could be concurrently developed along with faster, short-term solutions (as below). The merit of such a Commission is that it will also be able to deal with other upcoming environmental issues such as reviews of EIAs for exploitation contracts.

ii. **Council initiative:** Council requests the development and coordination of *ad hoc* groups to the LTC. The REMP advisory/expert group is then established for each particular region; stressing here that it is a neutral body. It was questioned that who appoints these external experts and approves them? Further, there might be a time problem to uptake this at Council (only February and July meetings).

iii. The **LTC** starts the process (much like with Standards and Guidelines) – involving outreach to appropriate experts as deemed needed. The potential lack of transparency here is balanced with ability put things in place quickly. It was suggested that open LTC meeting would be good for that. It was pointed out that there is a list of seven regions for REMPs with more to come; this gives rise to the question: Would this need an overarching organisational body or would that be the LTC?

Accordingly, there was no general consensus on how this body should be formed, but a combination or hybrid solution could be explored. With respect to how this body should be funded, the tables discussed the possibility that some experts might be willing to provide their expertise on a voluntary basis. It was noted that there are some funds available for workshops that could be utilised and there could be a call for voluntary contributions to add to this, while means for external funding should be explored (*e.g*. EU or GEF). Finally, it was emphasised that the expert body or group should only have an advisory capacity. Here, it was discussed that the expert body/group could either provide the LTC (or Environment Commission) with the necessary scientific and technical basis to develop the first draft of the REMP or could develop the first draft and submit it as a suggestion to the LTC/Environment Commission, which then considers and makes a recommendation to Council. The expert body/group should have a size that is manageable (ca. 6 people: With expertise such as biologist/ecologist, geologist, oceanographer, spatial planer, lawyer/policy, regional social/economical/geopolitical expert). There was wide agreement that this body/group takes leadership for the organisation and steering of inputs into the REMP development process via workshops (to involve a wider range of expertise), and ensure the full involvement of consultants/stakeholders in the process.

7. Stakeholder participation and roles of scientific community, contractors and civil society

Representatives of several stakeholder groups potentially affected by and/or interested in the REMP development process carried out by ISA were invited to present their views and comments during a panel discussion of 1.5 hours. All of the panellists have a long track-record of involvement with ISA-related affairs and/or national seabed mining application processes. The panellists were Samantha Smith (contractor), Duncan Currie (eNGO), Clemens Mulalap (coastal State), Bronwen Currie (coastal State), and Diva Amon (science).

In a first round, the panellists introduced themselves and outlined their links to ISA REMP development. Samantha Smith emphasised that contractors such as GSR view REMPs as important tools to meet regional environmental management goals. She emphasised the guidance function of the REMP, including designations of no-mining APEIs, for exploration and future exploitation Plans of Work, including our EIA, EIS, EMMP and Closure Plans. Duncan Currie highlighted transparency as continuing to be a main issue of concern with respect to ISA processes, including the development of REMPs. As an example, the workshop in Quindao[36] was mentioned, where the opportunity for stakeholder involvement was very limited. Overall, the development of the REMPs has to be put into context with the overall architecture of the ISA legal regime. Under the current conditions, a moratorium to deep seabed mining was called for until such time that there are enough structures in place to ensure the protection of the marine environment and information about technology is verified with respect to the scope of environmental effects to be expected. Clement Mulalap highlighted that Micronesia is an adjacent State to the region under consideration for seamount crust exploitation[37] with a particular interest. Indigenous and traditional knowledge can add much to overall regional environmental descriptions and assessments. Broad scale zoning of the high seas "pockets" (those parts of the ocean that are surrounded by EEZs of different Pacific Island States) including in the Area underneath is of major interest. Bronwen Currie emphasised that REMPs, building on appropriate Strategic Environmental Assessments, are absolutely essential in an emergent industry that may increase with time. In Namibia, an approval process for an application for phosphate mining in the EEZ is ongoing, currently with a moratorium until the cumulative impacts of the activity can be verified in a SEA. The SEA will involve all the various sectors and stakeholders. Diva Amon, co-lead of the Deep Ocean Stewardship Initiative, DOSI, pointed to the fact that it was scientists who initiated the first REMP in the Clarion-Clipperton Zone. She outlined that REMPs, in particular future research and monitoring plans and gap analyses, would hopefully provide for opportunities to better adjust research priorities to the needs and help to verify accuracy, effectiveness, improvements and revisions with new knowledge added.

[36] International Seabed Authority 2019b, https://www.isa.org.jm/workshop/workshop-development-remp-cobalt-rich-ferromanganese-crusts-northwest-pacific-ocean-26-29

[37] International Seabed Authority 2019b, see footnotes 8 and 37

Comments on the proposed stakeholder consultation options in the REMP Procedure document

Samantha broadly agreed with the procedure proposed and thought that a 60 days consultation period was reasonable, given that this is a period as in many national jurisdictions. She considered workshops to be a good tool to gather as many viewpoints and ideas as possible. Duncan emphasised that States are stakeholders as well, in particular as adjacent coastal States, and parties to international organisations. Also, distant States may have a well-defined interest in a region, such as experiences in RFMOs. The definition of who is a stakeholder should thus be very broad. Stakeholder engagement should not be seen as a burden but as a very positive contribution in that stakeholders are able to bring the broad range of interests to the table, from traditional knowledge, to cultural views, and independent science. Clement agreed and underlined that adjacent coastal States need to be consulted actively, rather than announcing consultation opportunities only on a website, and continuous engagement throughout the REMP developing process should be ensured. The 60-day window for reaction may be too short, in particular for those States which were not previously engaged. Bronwen made the point, that prior to consultation there must be information what it all is about, including the fact that the Area is CHM, and what this actually means. As, in the Namibian context, most people do not live along the coast and hence only engage in ocean related processes to a limited extend, it is crucial to explain the essential function it was crucial to explain the essential function of the oceans for our lives and what is at risk. She emphasised that given the scope of the matter, the top decision-makers should be involved from the beginning. Diva suggested that consultation should be accompanied with time tables and alerts to provide for a longer foresight of stakeholders. The stakeholder and expert mapping exercise should be clear, transparent, effective, but there should be opportunities to self-identify, rather than selecting them. She expressed strong concern about the dissemination of information and expressed a need for drastically improving the performance of the ISA website, if it was to be used to facilitate communication. She linked this communication problem with poor engagement by stakeholders who have to struggle to find the information they need. Pro-active invitation of stakeholders should seek to address more than the current "community".

Data gaps - Who is from your current point of view responsible for establishing the necessary region wide baseline, and what is your current obliged/voluntary participation in the process of closing data gaps? -Do you see a standardised way to be able to close data gaps which could be anchored in the REMP Template?

Samantha highlighted that contractors have the obligation to establish environmental baselines in their contract areas; some do so with academic partnerships, some contractors collaborate with each other. Contractors have so far voluntarily investigated APEIs, but there was only little ship time due to high cost, but if this was set out as a contractual obligation the funding may change. She argued that there are different ways to achieve the objectives and targets of a REMP and EIA, EIS, EMMP, Closure Plan are also part of the toolbox. Setting representative sites away within contract areas may be an option for contractors to achieve objectives of REMP.

Diva explained how science addresses gaps in knowledge and that science engages in various forms in processes such as developing REMPs. According to her, ideally baseline studies should be conducted by scientists, funded by contractors, philanthropic organisations, Member States, intergovernmental organizations. Cross-sectoral mechanisms are needed to support the effort, and

more importance has to be given to capacity building. The essential environmental information needs to be identified, prioritised, gathered and processed in a standardised way to avoid quality differences.

Clement indicated that relevant data may also come from other sources such as adjacent coastal States *e.g*. from Extended Continental Shelf, ECS submission work. The Procedure document makes reference to traditional knowledge - this should be shifted to formal process as it has been done in the EBSA process.

Duncan raised the point that another source of information could be the data of fishing industry - other sectors and stakeholders can bring in science, too. On the example of the New Zealand trial on seabed mining,[38] he explained the urgent need for good baseline studies. A robust mechanism is needed to establish whether the presented knowledge/evidence is sufficient. As long as we do not have enough evidence, the precautionary principle says we should not go mining.

Bronwen pointed to the central role of a responsible agency with sufficient qualifications to look after the data collection - in the case of the ISA, this is unclear. In national waters, a lot of information on mining impacts is missing also, partly because the crucial studies were not commissioned and partly due to lack of funding.

Discussion

One participant linked the process for review of a REMP with the significantly more proactive consultation processes foreseen for Area-based Management Tools, ABMTs under in the draft text of the BBNJ Agreement, and asked whether these should be aligned. Duncan responded that some kind of forum, such as is envisioned in the BBNJ, would be very valuable to assemble the range of interests. Reviews need structural context and for that continuity, inclusivity and institutional memory is needed. A permanent body such as a scientific environmental body could do that. Clement added that, at least Micronesia has advocated very strongly for interlinkages between relevant environmental instruments and processes. Consultations should be as proactive or active as possible, in particular with regards to potentially affected coastal States.

Another participant asked if contractors are actually able to understand what the potential effects are, if they are not studying outside their area of contract, their area of potential mining? Is there a way of getting additional data from the contractors? Samantha replied that collaborations among contractors shall provide a better insight into larger processes. But science and testing programmes are ongoing and need to deliver data for model verification. Bronwen added that data mining is the first step and may reveal so far unexpected data treasures. Diva points out that for the purposes of a REMP a region has to be looked at holistically. However, data gaps and funding problems should not hinder to make the first steps. Duncan adds that this highlights again the need for an open and transparent system.

Another participant asked to think about the "red lines" that should not be crossed and wondered about the actual impact stakeholders make if the scientific advice can be overturned such as in the case of the placement of the APEI network in the CCZ. An ideal process may lead to flawed decisions.

[38] http://www.environmentguide.org.nz/activities/minerals/case-study-chatham-rise-phosphate-mining/

Bronwen responds that Strategic Assessment will help to operationalise setting `red lines´ and determine the point where tolerance will be exceeded. The decision can only be no to mining. Duncan added that if no effective protection (citing Article 145 LOSC) based on sufficient evidence can be provided then the precautionary decision has to be no to mining. REMPs goals should reflect the intentions of all of the SDGs, not just SDG 14, but also for example SDG 12 about responsible consumption and production. Samantha explained that among other stakeholders, contractors would contribute to formulating REMP goals in a first step - next step is how to achieve them. APEIs one of the tools, but there are others in the environmental toolbox, which continues to be developed. A transparent process is critical - bring international community to the table and keep informed from the beginning and cooperate. Diva pointed out that the threshold question is a difficult one controversially discussed in the science community. Samantha advises that existing thresholds for other offshore industries could be a good starting point for developing systematically those for deep seabed mining. Ground-truthing (testing) and science is needed to go further. One participant reminded the workshop participants that there is a social and cultural dimension of what is considered as acceptable for humankind, which is also difficult to bring in. Clement raised the point that where there are no specific thresholds, there can still be special concerns which should be addressed in a REMP. In the case of Micronesia, concerns include the potential impacts of seabed mining on the EEZ, including cultural important migratory species, but also climate change considerations or whether seabed mining might impact the carbon uptake cycle in the ocean.

8. Final discussion

8.1 Take-away points of the organisers

8.1.1 Our take on the comments received on the `Procedure´ document

The comments are differentiated in three categories:

- General observations
- Aspects to be included in the Procedure document
- Aspects beyond the Procedure document

Generally, the standardised approach was strongly supported in order to achieve transparency, consistency and acceptance. Furthermore, the establishment of an expert body for the development and the review of REMPs as well as the involvement of scientists and stakeholder were seen as essentially required.

The following aspects can be highlighted here for inclusion in the Procedure document

1. An expert committee was considered necessary for the development and the review of REMP. The committee should steer the process, potentially should also develop the first draft itself. It should act as a neutral science- based body of about 5-7 experts. The following expertise should be represented: Biologist/Ecologist, Geologist, Oceanographers, Spatial planning expert, Economist, Lawyer. Whether regional representation is needed, has to be discussed further.

2. The format and standing of the expert committee must be defined. A long-term solution would be to have an overarching `Scientific and Environmental Committee´ next to the LTC. This committee should have a supervising function and should establish sub-committees for specific REMPs. Alternatively, for the time being either the LTC or the Council could establish *ad hoc* committees for specific REMPs which have to report back to either the LTC or the Council directly. When considering these options, the political implications of the institutional changes required should be taken in to account.
3. The administrative and facilitating role of the Secretariat should be explicitly mentioned in the Procedure document.
4. There was a wide consensus that the Council should initiate the development of REMP, appoint the experts for the committee as well as approve and finally review REMPs. Some suggested that the Council should also appoint the experts for the committee.
5. Stakeholder involvement was seen as key in order to ensure high quality of REMPs and to achieve more acceptance. To this end, it was recommended that the stakeholder mapping should include international organizations and that non-Council States should be given particular attention. Furthermore, live-streaming of the envisaged workshops should be considered.
6. Some suggested the expertise should also include relevant traditional knowledge of Indigenous Peoples and Local Communities. Whether contractor representatives should be in the committee was questioned. It was noted that additional funding would be required for such expert committees.
7. One of the key functions of these workshops should be information gathering. Another should be the involvement of all interests, perspectives and expertise.
8. A more long-term solution would be coordination with the BBNJ-process.
9. Concerning the formal consultation procedure, it was questioned whether 60 days are sufficient, given that other international bodies only meet once a year or even more seldom. It should be ensured that somehow it is documented and made publicly available how comments have been addressed.
10. With regard to the review phase, it was widely agreed that a new application for a Plan of Work (PoW) should only be one of the trigger events if the PoW is for a new resource category.
11. It was commonly stated that data and information availability is key. One source is contractor´s data. Up to now, there are some deficiencies. The second source is scientific papers. It was noted that data from contractors and scientific papers can be one and the same in instances where contractors are partnering with the scientific community to perform environmental studies. A need was seen to standardise the data and information gathering and to establish a synthetization scheme involving both scientists and practitioners. Some noted that the Authority's guidelines already included extensive and detailed environmental data and information requirements, on which a considerable body of work had already been based. The synthetization could be done by the REMP committee. A regional data base to be continuously updated was recommended.
12. A cross-evaluation of REMP with regard to consistency and compliance to the standards was suggested.
13. Some suggested that a flowchart should be included in the Procedure document.
14. The following mentions aspects which are beyond the Procedure document:

a. Contractors should be incentivised to submit ecological data, either by “sticks” – no data, no exploitation approval – or by “carrots”.

b. The workload of REMP committees is not to be underestimated: They need to “translate” scientific information in manageable decisions.

c. It was suggested that the REMP committees could be mandated to provide an assessment to the LTC whether an application for a PoW is in line with the respective REMP.

d. The development of REMP needs to be funded. Who should bear the costs? Contractors directly or via an additional fund?

e. It was suggested to consider whether the Inspectorate should be mandated to control compliance with the obligation of contractors to submit environmental information.

Discussion

The first remark was made on the indicated role of the secretariat. It should be acknowledged that the secretariat has competency of administrative and of a technical nature.

Another participant suggested phrasing "open ended" or "*ad hoc*" instead of "permanent" REMP Committee. This was supported by another participant who noted overwhelming support to have such an Environmental Committee. The problem was that obviously have to be in place REMP very soon. This calls for some kind of *ad hoc*/ short-term procedure, while pursuing the establishment of such an Environmental Committee by drafting its terms of reference as a start. The response outlined that of course benefits and costs of the Committee have to be taken into consideration. However, a standardised procedure for REMPs was needed now. Another participant noted that short-term and long-term solution, *i.e*. Environmental and Scientific Commission, and REMP Expert Committee, respectively, may not be mutually exclusive.

Another participant was concerned that the wording may indicate that a future REMP committee should have the competence to decide upon the approval of Plans of Work for exploitation in light of the REMPs. It was recommended to require the REMP Committee to provide expert advice on the matter to LTC. For some, this may be an innovative way of advice and decision-making, as in some national contexts the approving authority for exploitation may not be required to collect and consider the advice of other government bodies, but be directly bound by national plans.

In relation to incentives which would foster the contractors to submit more comprehensive ecological data, the proposal was made to require contractors to demonstrate that their activities do not cause environmental impacts on areas beyond their exploration/exploitation areas. Given the different knowledge needs of society - ecological state and impacts on the deep sea ecosystems - and contractors - economic feasibility - it was suggested that there should be a strict division of responsibilities for research [independent research allowing for transparency over issues of societal priorities].

The last point was made on financial resources. Two potential sources of funding exist: First, the "environmental fund", which only comes into existence once exploitation has begun. The second option to raise funds under exploration conditions is through the contractors, either if there are more contractors, or through voluntary contributions. Both sources are thus not timely or easily available for funding REMP development. It was added that of course, Member States can decide to

make voluntary contributions for the development of REMPs. Other options have to be found. All options have to be discussed with the Finance Committee. In the regulations already, if PoW application, all contribution have to be shown that all financial obligations fulfilled. What if the exploration contractor is not the one to apply for exploitation? Anyway, decisions on funding issues are not part of the procedure document and cannot be extended here.

8.1.2 Our take on the comments received on the `Template´ document

During the last three days, there was broad consensus that a standardised approach to REMPs, using a Template, is helpful to pursue. Such a Template document, setting out the minimum requirements for all REMPs to be developed, should be effective and a stand-alone document, and cross-link to the other documents were appropriate. Adding an Annex on the use of terms was suggested. A lot of proposals for revising the subtitles and structure of the Template were received. In summary, this should read

1. Purpose
2. Vision - to be discussed
3. Overarching Goals - instead of Objectives
4. Principles
5. Environmental description (current 3.2.1.1-6)
6. Regional Assessment (current 3.2.1.7)
7. Regional objectives and targets (current 3.3.1)
8. Management measures (current 3.3)

A restructuring of chapter 3.2. and 3.3 would deliver the new chapters

1. Environmental description (current 3.2.1.1-6)
2. Regional “Risk” (?) Assessment (current 3.2.1.7)
3. Assessment effective protection/financial outcome (3.2.1.8.) – should stand alone
4. Regional objectives and targets (current 3.3.1)
5. Management measures (current 3.3)

The following suggestions relate to the current "Purpose and Objective" section of the Template (Section 1) other than structural changes:

- Purpose: Better describe what the REMP does
- Reorganise and eventually shorten the "Objectives"- now mixture of inputs and outputs, means and ends
- Make clear that applicable to what will be defined as the region
- Add mitigation and reduction of impacts; restoration; maintain ecological resilience (including ecosystem structure, function and services, recovery)
- Clarify how Goals and Principles interact and influence the Plan
- Cumulative impacts to include effects of climate change - climate change as a stand-alone objective (avoidance exacerbation of ecosystem vulnerability to climate change)?
- Add transparent decision-making and public participation, identification of gaps in knowledge, effective monitoring and capacity development

- Remove ecosystem approach and put into principles.

Comments on the "Principles" (Section 2.) included

- Frame it differently: Implement the Ecosystem Approach to management - this includes all the principles set out in the document
- Add 'best available science' or 'best environmental information and evidence' to the list of principles
- Principle of 'transparency' could be expanded upon, in particular to include expressly the importance of stakeholder participation.

Comments on the Technical and Scientific details (Section 3.)

- Definition of the specific REMP region (3.1, map): Biogeographic regions important (Build from seafloor biogeography upward into water column provinces, 3D map)
- Add Boundaries: Incorporate political boundaries (*e.g*. EEZs; recognising that boundary types my influence how activities are managed (*e.g*. mining plumes cannot be allowed to extend into EEZs). Take into consideration license areas and features that cross biogeographic/oceanographic boundaries
- Regional environmental assessment (3.2.) - YES, is required (large majority)
- Baseline information (3.2.1.): Clarify terms *e.g*. "Archetypical species, add information on *e.g*. underwater munitions, connectivity, incl. migratory connectivity, sectoral spatial management measures (*e.g*. fishery closures …), VME.
- Management measures (3.3.): "Should be designed independently of current exploration contracts"
- Region specific goals[39] (3.3.1) are needed (*e.g*. protect particular fish resources; protect specific cultural heritage)
- Area Based Management (3.3.2.) to comprise MPA/APEI (redefinition needed); PRZ/IRZ part of REMP or in "standard and guidelines"?
- Seasonal and temporal restrictions (3.3.4): To be defined based on water bodies, current behaviour, daily/nightly control
- Restrictions on specific communities (3.3.5): Needs to be broader (including habitats, areas of scientific value/interest, areas of cultural, social importance)
- Measures to deal with potential use conflicts/cumulative effects (3.4.) to address both all stressors *inter alia* climate change; shall address temporal and spatial scales and dynamics for stressors; stress from outside the region of a REMP needs to be considered; REMPs should to be coherent with other regimes; Dealing with data gaps to predict cumulative impacts and use conflicts; GIS maps are needed to show where we do not know things.
- Strategies for enhancing knowledge (3.5.): Is test mining (always) needed? List the gaps and prioritisation of work program and long-term research plan to fill gaps; have a monitoring plan for the region. The practical constraints on such a programme, including cost and availability of researchers and research assets, were noted.

[39] to be "objectives"

- Performance metrics (3.6.): Yes, important to add! Suggestions: Measurable disturbance in core regions of APEIs, the 17 APEI performance metrics outlined in Dunn et al. (2018)[40]. Set indicators (species, environmental variables, *etc.*) indicative of health of (or impacts to) valued /managed components of region.
- Add `3.7.´ Provide a Monitoring Plan for the region and how it is financed.

Discussion

- A suggestion was reiterated to clearly set out climate change not only generally as a factor to be considered in cumulative impact assessments, but to include a stand-alone climate change objective, such as `avoidance exacerbation of ecosystem vulnerability to climate change.´ In addition, the mid-water column should also be addressed.
- Another participant cautioned against specifying the objectives too much, *i.e*. listing migratory species, considering the broad range of unknowns.
- A concern was raised that in the end, the indicators and performance metrics might not reflect the full range of impacts and measures, but mainly the coverage by a network of APEIs. It was reminded that the goals and objectives of the REMP have to be set such that also the environment outside APEIs is effectively protected. The performance metrics would have to be applied by contractors also.
- Another participant pointed again to the usual hierarchy of vision - overarching goals - management objectives and targets and reminded not to confuse goals and objectives. Goals are common goals, while objectives are more specific and for specific REMPs.
- A question related to the formulated need for testing of equipment and systems as an information source on environmental impacts, to be built into a REMP. Was it meant to be a prerequisite? It was noted that the ISA gave up on this idea in the regulations. The response clarified that this issue was not discussed further during the workshop.
- The PRZ and IRZ, to be designated by the contractors within their contract areas were questioned as an element of the spatial measures under the REMP. In response, it was explained that the appropriate ISA guidance to contractors might need regional specifities which relate to the REMPs. It was not meant to be established through the REMP.

8.1.3 Our take on the comments received on the 'Giving Legal Effect to REMPS' document

1. REMPs need to be legally binding in some way. A mere 'guiding' character was regarded not sufficient, also with respect to creating a level-playing field for contractors.

2. REMPs also need to be open to regular review and updating.

[40] Dunn, D.C., et al., 2018. A strategy for the conservation of biodiversity on mid-ocean ridges from deep-sea mining. Science Advances 4 (7), 1-15.

3. Broad support to 'hybrid proposal': REMPs as Council policy decision, accompanied by Regulations giving certain parts legally binding effect.

4. There was some support also to the idea that the regulations should restrict the LTC's ability to recommend approval of a Plan of Work unless and until *there is a REMP, and the applicant's plans are assessed to comply with the REMP.*

5. Proposals for actions during the interim period while Exploitation Regulations are being drafted*:*

   - Member States should inform the Council at the February Annual Session on the outcomes of the workshop, and will submit specific proposals on further process.

   - ISA Council Members should discuss and safeguard binding nature of REMPs.

   - The REMP template could by adopted in the immediate term by way of a Council decision, and in the future may be adopted as an ISA 'standard' or annex to the Exploitation Regulations – to be followed in future REMP processes.

   - Council should pass a decision to declare that no new exploration contracts/Plans of Work will be considered by the LTC or approved by Council unless and until there is a REMP in place in the relevant region and the application has been assessed for REMP compatibility. REMP compatibility could be introduced into upcoming Council decisions regarding extensions of exploration contracts also.

6. Existing exploration contractors could be required to comply with provisions of REMPs now, by way of a Council decision or revision of the Exploration Regulations. However, some expressed a view this was not the priority at the moment. Guidelines on selection of relinquishment areas (which could then be used for APEIs) could be helpful.

7. For the aspects of REMPs that are given legal effect by regulations or standards, there must be commensurate processes and powers in place to monitor and enforce compliance. As a first step: Current contractors could be asked to include in their annual report a section on whether / how they are complying with the REMP, and LTC can report to Council.

8. Sponsoring States also can take responsibility to ensure contractor compliance with REMPs*.*

Discussion

- A revision of the exploration regulations may be required to close some gaps and better link between the existing exploration regime, and Exploitation Regulations under development.
- The due diligence obligation of sponsoring *State*s is to ensure that the contractor complies with its obligations under UNCLOS and any rules, regulations and procedures of the ISA. That should include any obligations on a contractor arising from a REMP.

- Should upcoming contract extensions be permitted in the absence of an agreed REMP? Whether the existing CCZ EMP is considered a REMP for this purpose would benefit from clarification.

8.2 Final Plenary Discussion

In the final round of discussions, a participant noted that although the international environmental principles are mentioned in the REMP template, they were not mentioned in the implementation chapter. It was important that ISA rules not only are in line with UNCLOS but also with other international legal and policy obligations and commitments. Maybe the most efficient solution is not the best.

Another speaker emphasised that the REMP is only the initial measure to regulate the different issues that have to be considered in the whole area. A number of other measures have to follow up on a more detailed level later, during the project. The right level of generality needs to be achieved, here on this level - and not the ambitious goal to solve all questions already on this floor.

9. Outlook

On behalf of the organisers, Ingo Narberhaus (BMU, Germany) provided a brief outlook as to the further processing of the comments received by the participants. Several actions will take place.

The workshop documents, *i.e*. the REMP Template and the Procedures document, will be revised in light of comments made during the workshop and provided in writing until 29 November. The revised documents will be subject of national consultations of the German and Dutch government who consider a submission for consideration of the ISA Council in February[41]. Participants were invited to communicate within their own national delegations.

The drafting of the Workshop Report will be done immediately and the draft will be sent out for comments prior to Christmas. Deadline for responses will be mid-January. The revised Workshop Report will be sent out to all participants and submitted to the ISBA Council, along with the other documents.

Thank you and farewell!

[41] now uploaded on ISA website as ISBA/26/C/6, https://www.isa.org.jm/document/isba26c6; and ISBA/26/C/7, https://www.isa.org.jm/document/isba26c7.

Annexes

Annex I – Template

Annex II – Procedure Document

Annex III – Legal Force Document

Annex IV – Agenda

Annex V –List of Participants

Annex VI – List of Abbreviations used

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

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REGIONAL ENVIRONMENTAL MANAGEMENT PLAN - TEMPLATE

("Template-Document")

October 2019

This document is a template developed for discussion at the November 2019 Hamburg Workshop. Its proposed purpose is to act as a standardised format that should be used for all ISA Regional Environmental Management Plans, to ensure consistency and comprehensiveness in all regions.

Sections 1 and 2 are to be replicated as drafted, for each REMP. Section 3 is required to be completed by region-specific text under each heading.

1. Purpose and Objective of the REMP [Why do we need a REMP?]

The purpose of this Regional Environmental Management Plan ('REMP') is to provide region-specific information, measures and procedures in order to ensure effective protection of the marine environment in accordance with Article 145 UNCLOS. To this end, this REMP sets environmental objectives, establishes environmental management measures (including area-based management tools) taking into account cumulative and synergistic effects, and seeks to manage potential conflicts between different human activities occurring in the same region.

This REMP should be used by the Authority and the competent authority of relevant sponsoring States in their decision making.

All of the Authority's REMPs should design assessment, management and monitoring measures with the aim to:

1. Maintain biodiversity, connectivity, ecosystem structure and function.
2. Use ecosystem-based management.
3. Preserve representative and unique marine ecosystems.
4. Avoid species extinctions.

5. Promote marine scientific research and capacity building in the Area.
6. Make use of available environmental data to inform management decisions.
7. Apply precaution in management decisions commensurate to the level of knowledge gap and risk.
8. Monitor and assess the state of the environment before, during, and after any activities in the Area.
9. Promote cooperation between States, contractors and other stakeholders of the Authority, with particular regard to the interests and needs of developing States.
10. Mitigate against use conflicts, by avoiding overlap between contract areas, reserved areas, Areas of Particular Environmental Interest (APEIs), Marine Protected Areas, and other legitimate uses (such as fisheries, submarine cables), accounting for social, economic, and ecological needs.

2. Principles

This REMP is guided by the following principles:

2.1. The protection and preservation of the marine environment.
2.2. The common heritage of humankind.
2.3. The precautionary approach.
2.4. Best environmental practice.
2.5. Integrated ecosystem-based management.
2.6. International cooperation.
2.7. Transparency and accountability.
2.8. Adaptive management.

3. Technical and Scientific Details

3.1. Definition of the specific REMP region[1]

[Insert a (geographic) map that contains:

-coordinates and depths of the specific REMP region,

-mineral resources of the specific REMP region,

-biogeographic areas in the specific REMP region, with reference to ISA Guidelines on how to define boundaries of ocean regions, where available].

3.2. Regional environmental assessment

[1] Figure 3 of the 'Workplan to implement ISA's REMP Programme' refers to seven regions: three for polymetallic sulphides, two for polymetallic nodules, and two for cobalt-rich crusts. This section of the REMP is where the region's boundaries should be set.

3.2.1. **Required baseline information**

3.2.1.1. [Insert description of environmental science data and results of data analyses in the region, gathered through contractor submissions to the Authority, Deep Data platform, as well as other global and regional databases (see ISA Secretariat REMP guidance document p.25-27) and scientific literature, supported by GIS maps / layers where appropriate, and including the following categories:

- Geophysico-chemical features:

- Physical properties (ISBA/25/LTC/6 15a).

- Chemical properties (ISBA/25/LTC/6 15b).

- Geological properties (ISBA/25/LTC/6 15c), including mineral resources.

- Biological features (ISBA/25/LTC/6 15d) and associated biogeographic areas (ISA Secretariat REMP Guidance, p. 20-21):

- Biogeographic ranges of characteristic species.

- Habitat and abundance models derived from species occurrence data.

- Analysis of species communities through ordination approaches or other techniques to assess species groupings.

- Identification of representative archetypical species or species functional types.

- Genetic connectivity of archetypical species.

- Ecosystem functioning.

- Identification of rare and fragile, or otherwise ecologically important, or sensitive or vulnerable ecosystems, or communities.

- Identification of main ecosystem services (example, natural carbon capture by biological pump).

- Identification of natural stressors in the region, including climate change.

- Identification of existing data gaps and uncertainties (due to data quality or quantity).]

3.2.1.2. [Insert details of seabed mineral activities, including number of contracts issued, or applications for contracts received, in the region.]

3.2.1.3. [Insert details of identified designations, management systems or standards by other international organizations or agreements (e.g. CBD, FAO, RFMOs, IMO, IFC, regional seas conventions, BBNJ Agreement) relevant to the region.]

3.2.1.4. [Insert details of other legitimate marine uses in the region (e.g. shipping, fishing, laying of submarine cables, marine scientific research projects).]

3.2.1.5. [Insert details of any cultural heritage in the region (e.g. sunken ships, fossils, human remains).]

3.2.1.6. [Insert a geographic map indicating areas identified under each of the sub-paragraphs of 3.2.1.2-3.2.1.5, above.]

3.2.1.7. [Provide a prediction of possible regional-scale effects of various mining scenarios (extent, duration, frequency of exploitation), taking into account cumulative impacts and climate change, using modelling following best available scientific techniques and comparison against the baseline established under 3.2.1.1, above].

3.2.1.8. [Consider whether and how the measures identified under 3.3. would ensure effective protection of the marine environment in addition to the financial and economic feasibility of the set of measures. (Reference ISA Secretariat REMP Guidance document, pg. 18)].

3.3. Management measures

3.3.1. **Region specific goals**

[Insert region-specific goals based upon the information gathered under 3.1. and 3.2, above, where such goals are required in addition to ISA Standards and Guidelines. An example might be ‘Avoid extinction of species X’]

3.3.2. **Area based management**

[Provide proposals for the establishment of the following area-based management tools: based upon the information gathered under 3.1 and 3.2, above:

3.3.2.1. Size and location of, and restrictions imposed by, Marine Protected Areas (MPAs), including a map.

3.3.2.2. Size and location of, and restrictions imposed by, Areas of Particular Environmental Interest (APEIs), including a map.

3.3.2.3. Guidance on how the size and location of Impact and Preservation Reference Zones (IRZs, PRZs) within contract areas within the region are set, consistent with any relevant rules, regulations or procedures of the Authority.]

3.3.3. **Determination of mining areas within a contract area**

[Provide details of restrictions on number, size, location of mining areas, or their proximity to other mining areas, within contract areas]

3.3.4. **Seasonal or temporal restrictions**

[Provide details of any seasonal or temporal restrictions that should be applied to seabed mineral activities (e.g. to take account of breeding seasons, migration of cetacean).]

3.3.5. **Restrictions of impacts on specific communities**

[Provide details of any measures designed to prevent or minimise impacts on specific communities.]

3.4. Measures to deal with potential conflicts with other legitimate uses

[Provide details, including how potential conflicts will be addressed by procedural arrangements with other international bodies]

3.5. Strategy for enhancing knowledge and cooperation

[Provide details for each of the following items, below

3.5.1. Future research plans, sampling methodologies, data analyses, to minimize current data gaps (see 3.2.1.1).

3.5.2. Measures to promote and incentivise test mining (and impact monitoring) projects.

3.5.3. Measures to incentivise marine scientific research, via international cooperation.

3.5.4. Measures for capacity building, training and technology transfer.

3.5.5. Communication and public information strategy.

3.5.6. Financing mechanism(s) for 3.5.]

3.6. Performance metrics

[Provide some proposed 'SMART' targets and indicators, against which the effectiveness of the REMP can be measured]

4. Implementation

This REMP will be implemented in accordance with [the Exploitation Regulations], including by incorporation into contractors' Plans of Work, which must be prepared and performed consistently with this REMP.[2]

5. Review

The Secretariat of the Authority shall provide every year to the Council: a report that summarizes new environmental data from all contractors, as well as new scientific literature data, and provides recommendations as to the implications of this new data for the REMP (if any).

This REMP should be reviewed every 5 years. Each REMP review should revisit the validity and currency of sections 3.1-3.5 (above). A report should be provided to Council setting out any new findings, and reporting on REMP requirements that were not implemented.

Further details of the REMP review process are provided in the REMP procedure document.

[2] The draft Exploitation Regulations as at the date of the Hamburg Workshop, include the following references to REMPs: Region specific environmental standards and guidelines (DR 45, DR 94), Environmental Impact Assessment and Environmental Impact Statement (DR47, Annex IV), and Environmental Management and Monitoring Plan (DR48, Annex VII). Please refer to the separate '
Legal Force of Regional Environmental Management Plans : An Analysis'' document also prepared for the November 2019 Hamburg workshop, for further discussion on this point.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

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Procedure for the development, approval and review of Regional Environmental Management Plans

("Procedure Document")

October 2019

1) Introduction

In carrying out its regulatory function for seabed mining in the Area, the International Seabed Authority ('**ISA**') has the obligation to ensure that the marine environment is protected from any harmful effects which may arise during seabed mineral activities. The Annex to the Agreement relating to the Implementation of Part XI of UNCLOS, Section 1, paragraph 5 stipulates that: *"Between the entry into force of the Convention and the approval of the first plan of work for exploitation, the Authority shall concentrate on:*

…….

(g) Adoption of rules, regulations and procedures incorporating applicable standards for the protection and preservation of the marine environment;

(h) Promotion and encouragement of the conduct of marine scientific research with respect to activities in the Area and the collection and dissemination of the results of such research and analysis, when available, with particular emphasis on research related to the environmental impact of activities in the Area;

(i) Acquisition of scientific knowledge and monitoring of the development of marine technology relevant to activities in the Area, in particular technology relating to the protection and preservation of the marine environment;

(j) Assessment of available data relating to prospecting and exploration;

(k) Timely elaboration of rules, regulations and procedures for exploitation, including those relating to the protection and preservation of the marine environment".

A Regional Environmental Management Plan ('**REMP**') should assist the ISA achieve these objectives. The procedure for REMP development, set out below, also takes into account that:

- pursuant to Article 162(2)(d) of UNCLOS, the Council has the power to establish such subsidiary organs as it deems necessary for the exercise of its functions; and
- the Legal and Technical Commission ('**LTC**') shall make recommendations to the Council on the protection of the marine environment, taking into account the views of recognized experts in that field (Article 165(2)(e)); and in the exercise of its functions may consult with inter alia *any international organizations with competence in the subject-matter of such consultations* (Article 163(13)).

2) Initiation of the REMP development process

For each regional area that is under consideration for the conduct of [activities / Exploitation] in the Area, a Regional Environmental Management Plan shall be developed by the ISA.

The Council is responsible to initiate the development of a specific REMP.

3) Development of REMP

(a) Expert Committee

The Council, on the recommendation of the LTC, should establish an expert committee for the development of a first draft of the REMP.

The selection and appointment of experts should be undertaken pursuant to published guidelines and UN-consistent procurement processes, with a focus on competence in the range of technical matters identified as relevant.

(b) First draft of REMP

The Expert Committee is responsible for preparing a draft of the REMP, based on all available data, and following the format set out by the REMP template. The REMP template contains standardised content for all REMPs in sections 1 and 2, but requires region-specific content to be developed and inserted for section 3.

The Expert Committee should first take steps to ensure it has all available data. This includes contractor data submitted to the ISA, pertaining to the region, and which is not deemed as confidential in accordance with the rules, regulations and procedures of the ISA, as well as any other information (including traditional knowledge) that the committee is able to gather and compile, and which is required to complete section 3.2 of the REMP template.

The Expert Committee (or the LTC) should organise - with the support of the ISA Secretariat - international expert workshops in order to develop the first draft of the REMP. Relevant experts and stakeholders in the field (including bordering coastal states) should be invited to the workshop, based on an expert and stakeholder mapping exercise (conducted by or for the Expert Committee) in accordance with the relevant guidelines.

(c) Consideration by the LTC

The Expert Committee will submit its draft of the REMP to the LTC for consideration, accompanied by a statement describing the process undertaken and stakeholders engaged in its development.

(d) Formal stakeholder consultation

[ISA Guidelines for stakeholder consultation may be useful]

Upon receipt from the Expert Committee, the LTC should make the draft REMP and a summary of the information gathered (pursuant to section 3.2 of the REMP Template) publicly available for 60 days by putting these documents on the ISA website, and should solicit comments from interested parties within this timeframe.

The ISA Secretariat should make any consultation responses received publicly accessible on the ISA website.

(e) Recommendations by the LTC

After the 60-day consultation period has closed, the LTC should consider the draft REMP in light of the regional environmental assessment pursuant to the REMP template (section 3.2), the comments submitted during the formal stakeholder consultation, and any further information to the LTC. The LTC should also satisfy itself that proper procedure has been followed in the development of the REMP, in accordance with any relevant guidelines.

The LTC should either recommend the Council to adopt the REMP, or should ask the Expert Committee for revisions to the draft REMP, and/or to undertake further processes in developing or verifying its contents.

Where the LTC recommends to the Council to adopt the REMP, this should be accompanied by a justification for its recommendation, a description of the process that has been undertaken in developing the REMP, and the report of the Expert Committee. These documents must be made publicly accessible on the ISA website at least 3 months in advance of the Council meeting, at which the REMP is put forward for adoption.

(f) Adoption of the REMP

Based on the recommendation of the LTC, the Council decides on the adoption of the REMP.

In case, the Council does not adopt the REMP, the Council may ask the Expert Committee for specific revisions to the REMP, and/or to undertake further processes in developing or verifying its contents.

4) Review of the REMP

(a) Annual Reporting

The Secretariat shall provide every year to the Council: a report that summarizes new environmental data from all contractors, as well as new scientific literature data, relevant to the REMP; and shall provide recommendations as to the implications of this new data for the REMP (if any).

(b) Timing

Each REMP must undergo a review within 5 years from its date of adoption by Council, and at least every 5 years thereafter, or earlier if requested by Council.

Trigger events for an earlier review may include:

- Issue of an ISA emergency order that relates to a site within the region.
- Request by a third party.
- Submission of substantial new environmental data for the region.
- A major change in environmental understanding.
- A major environmental change in, or affecting, the region (e.g. a natural or man-made disaster).
- Relinquishment of areas previously under contract within the region.
- Submission of a new application for a plan of work for exploitation in the region.

(c) Responsibility

The Expert Committee is responsible for leading the review process (taking into account any specific instructions from the Council), and reporting on the outcome to the LTC.

The LTC is responsible to receive and consider the review report of the Expert Committee, to satisfy itself that proper procedure has been followed in the review of the REMP, in accordance with any relevant guidelines, and to recommend to the Council any proposed amendments to the REMP. In submitting to the Council, the LTC should include a rationale for its recommendations, and a description of the process followed in conducting the REMP review.

The Council is responsible to review the amendments recommended by the LTC, and either to adopt the revised REMP, or to revert the recommendations to the LTC for further work (who may in turn revert to the Expert Committee).

(d) Consultations

[ISA Guidelines for stakeholder consultation may be useful]

Relevant persons identified via an expert and stakeholder mapping exercise shall be invited to provide inputs to the Expert Committee, as part of the review process.

Upon receipt from the Expert Committee, the LTC should make the proposed revised REMP and a copy Expert Committee's report publicly available for 60 days by putting these documents on the ISA website, and should solicit comments from interested parties within this timeframe.

The LTC recommendations and revised REMP proposed for Council adoption must be made publicly accessible on the ISA website at least 3 months in advance of the Council meeting at which the revised REMP is put forward for adoption.

(e) Scope of REMP review

Every REMP review should revisit the validity and currency of section 3 of the REMP

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Legal Force of Regional Environmental Management Plans

An Analysis

("Legal Force – Document")

October 2019

A. WHY IS THIS IMPORTANT?

1. It seems clear from ISA workshops, Council discussions, and consultation submissions that:
   - REMPs are necessary elements of the ISA's regime for managing the activities in the Area in accordance with its mandate of effective protection for the marine environment.
   - REMPs should 'strongly contribute to' the legal framework that sets specific management objectives for contractors [Lodge / Verlaan, Elements], and
   - No mining should occur in a specific region unless and until a REMP has been endorsed by the Council for that region.

2. But there appear to be different interpretations as to the status of a REMP, for example:
   a. The current EEZ EMP appears to be a policy document issued by the Council pursuant to Article 162 UNCLOS, which has no regulatory teeth, nor contractual force. UNCLOS does not require compliance by States or contractors with ISA policy documents.
   b. A REMP is a 'necessary measure' taken by the ISA under Article 145 of UNCLOS for the effective protection of the marine environment, and as such requires the adoption of relevant regulations to implement (which may be the Exploitation Regulations).
   c. REMPs are directly part of the 'rules, regulations and procedures' for the protection of the marine environment, required from ISA by Article 162(2)(o)(ii) and Annex III Article 17 of UNCLOS. As such, every approved plan of work must be in conformity with, comply with, and be governed by, REMPs (Annex III Articles 3(4) and 6(3)).
   d. REMPs *can be* 'rules, regulations and procedures' for the protection of the marine environment, if so adopted by the Council and submitted to the Authority (with reference to Article 162(2)(o)(ii)).

3. The distinction is important as, unless an instrument of the ISA that is binding on relevant parties (e.g. contractors, ISA organs, States), places specific and enforceable obligations on those parties (e.g. to develop REMPs, to comply with relevant parts of REMPs), then a REMP will have no legal force, and may be departed from, without repercussion.

4. Giving elements of REMPs legal force seems essential. This paper considers *how* to do this.

B. WHAT APPROACH WAS TAKEN WITH 2012 CCZ EMP?

5. The ISA has one existing REMP (EMP for the CCZ). This was a new initiative, arising out of a project funded by the JM Kaplan Fund and the Pew Charitable Trusts, aimed at identifying a biogeographically representative network of potential protected areas. This led to an expert consultative process under the auspices of the ISA, and then the adoption of a CCZ EMP by a Council decision in July 2012 ISBA/18/C/22. The development of the CCZ EMP was something of an organic process without a predetermined process or content.

6. The Council's July 2012 decision '*approved*' the REMP, '*to be implemented over an initial three-year period*', recognising that it should be '*applied in a flexible manner so that it may be improved*' over time, with '*further dialogue with all stakeholders*'. The LTC were requested to report to Council on the implementation of the CCZ EMP. The Council decision also provided that, for a period of five years or until further review by the LTC or the Council, no application for approval of a plan of work for exploration or exploitation should be granted in the areas of particular environmental interest (APEIs) designated in the plan.

7. The CCZ EMP is not referenced in the Exploration Regulations (2000-2013). Although difficult to verify as the contracts are not publicly available, it seems that the CCZ EMP is not referenced in the sixteen exploration contracts that have been issued in the CCZ region. The LTC's '*Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area*', as updated in 2019 [ISBA/25/LTC/6] does not require contractors to take account of the CCZ EMP in data collection or otherwise planning or conducting environmental impact assessment in the region. (Although it does indicate that data submitted to the ISA by contractors '*will be used for regional environmental management and assessment of cumulative impacts*' and could '*support the development of appropriate regional environmental management plans*'.)

8. Advantages to the 'Council decision' approach taken with the CCZ EMP were that it was a relatively quick and straightforward process, which envisions review and amendment of the EMP.

9. Disadvantages include that:
    - There were no ISA-set rules for how the REMP was developed and what it should cover.
    - The Council decision had a short-term outlook and is silent about what should happen after the expiry of the three-year period.
    - There is no repercussion or identified pathway for action, should the Council decision on the CCZ EMP fail to be followed e.g. if the REMP is not implemented, if there is not sufficient dialogue with stakeholders or improvement over time, if contracts are awarded within APEIs, etc.

- The CCZ EMP itself does not create any binding obligations for contractors or states. It only sets out the ISA's policy (for example, it states the ISA's policy not to approve plans of work in APEIs, but does not prohibit any contractor from impacting on in APEIs).
- There does not appear to have been any attempt to link the REMP with the future award of contracts, data collection or other contract performance by contractors, or management of contracts by the ISA, within the CCZ.
- Council decisions are not directly binding on contractors.

C. ARE THERE OTHER WAYS IN WHICH REMPS COULD BE GIVEN LEGAL EFFECT UNDER THE ISA REGIME?

10. A key option, recently recommended by the Council [ISBA/24/C/8/Add.1], is that relevant elements should be reflected in the draft Exploitation Regulations. This option is explored in sections D and E, below.

11. REMPs are not relevant only to Exploitation and the issue and management of Exploitation contracts. As such, one option would be for the ISA to establish a dedicated and standalone set of Regulations to cover the process development, requisite content, and status of REMPs, providing a clear mandate and structure for the preparation of individual REMPs. (This could be a wider set of environmental regulations – as there are other aspects relevant both to Exploration and Exploitation, for example environmental impact assessment).

12. Standards and Guidelines, issued under Regulations, may also be an avenue for further designing, operationalising and prioritising REMPs.

13. REMPs could be declared by the Council (and adopted by the Assembly), as comprising part of the 'Rules, Regulations and Procedures' of the ISA (under Articles 160, 162 and Annex III of UNCLOS). This would mean that REMPs already have binding effect, in the sense that Plans of Work are required by UNCLOS to conform and comply with all 'Rules, Regulations and Procedures' of the ISA, and must be governed by them. If this approach is adopted, then the content of the REMPs should be carefully designed so that it is clear which aspects are considered to be directly applicable obligations, and these should be drafted in clear and enforceable terms. This is important as a contractor's rights under the contract may be suspended or terminated where, after warnings by the ISA, the contractor has conducted activities in such a way as to result in serious, persistent and willful violations of the rules, regulations and procedures of the ISA (Annex III, Article 18 UNCLOS).

D. WHAT DO THE DRAFT EXPLOITATION REGULATIONS SAY?

14. To some extent, giving REMPs legal force by way of Regulations has been attempted in the latest iteration of the draft Exploitation Regulations released by the LTC in March 2019 [ISBA/25/C/WP.1], as follows:

(i) **REMPs as a Fundamental Policy.** DR2 provides '*fundamental policies and principles of these Regulations'* including (e) '[to] *provide, pursuant to article 145 of the Convention, for the effective protection for the Marine Environment from the harmful effects that may arise from Exploitation, in accordance with the Authority's environmental policy,* ***including regional environmental management plans*****'**. The import of this is a little unclear, but it appears that the intention is to ensure that any implementation action or

decisions under the Regulations should only be taken in conformity with REMPs (DR2(i)).

(ii) **REMPs and EIS / EMMP**. DR 47(3)(c) requires an applicant's Environmental Impact Statement (EIS) to be '*in accordance with the objectives and measures of the relevant regional environmental management plan'*. 48(3)(b) requires an applicant's Environmental Management and Monitoring Plan (EMMP) to be '*in accordance with the relevant regional environmental management plan'*.

(iii) **REMPs as an assessment criterion at contract application stage.** When assessing an application for a Plan of Work for Exploitation, the LTC must make a specific determination whether the proposed Environmental Plans provide for the effective protection in accordance with REMPs (DR13(4)). There is not however a corollary requirement that the LTC should *not* recommend approval of a plan of work where this criterion is not met.

(iv) **REMPs as Prerequisites?** DRs 13(4), 47(3)(c) and 48(3)(b) (see above) indication that an EIS and EMMP must take account of a relevant REMP, implies that an application for a Plan of Work cannot be submitted or assessed unless a REMP exists for the region in which the work would take place. But the Regulations stop short of explicitly stating this, or of placing obligations upon ISA organs to develop REMPs.

E. WHAT MORE COULD THE DRAFT EXPLOITATION REGULATIONS SAY?

15. There seem to be a number of other opportunities not yet taken, to give REMPs a more formalised mandate and standing, and direct application to individual contracts, via the Regulations. Some examples are provided below:

(i) **REMPs as Prerequisites.** For the avoidance of doubt, the Regulations could provide that a current and approved REMP is an essential prerequisite to consideration of a Plan of Work in any region in which mining is proposed. DR 15(3), which stipulates circumstances in which the LTC cannot recommend approval of a Plan of Work, could include a new paragraph to prevent contract award where: "*The location covered by the proposed Plan of Work involves any area in which no regional environmental management plan has been approved by Council as of the date of the application*."

(ii) **Allocating responsibility for REMPs.** The Regulations do not assign responsibility to specific ISA organs for REMP development, review and implementation. A new Regulation on REMPs could mandate the Council to develop and regularly review REMPs (with the advice of the LTC and any sub-committees or other subsidiary bodies established by the Council for that purpose) for any region in which seabed mineral activities are envisaged, before any contract is awarded in that region.

(iii) **REMP Process**. The draft Regulations do not prescribe any minimum requirements or standardised process by which REMPs should be developed, reviewed, and overseen. To address this, one option would be to cross-refer in the Regulations to a Standard for REMP development and review. The 'Procedure for REMP development, approval and review' document developed for this workshop (or similar) could be adopted by the Council to form such a Standard. The Regulations could also include a specific requirement that REMPs must be formally reviewed periodically, for example every 5 years at a minimum or earlier where the Council so decides.

(iv) **REMP Content.** The draft Regulations do not prescribe any minimum requirements of standardised content that should be covered by all REMPs. To address this, one option would be to cross-refer in the Regulations to a Standard for REMP content. The 'REMP template' document developed for this workshop (or similar) could be adopted by the Council to form such a Standard. Alternatively the Regulations could require compliance with the template, and annex it to the Regulations.

(v) **REMP and other legitimate uses**: The Regulations may describe what measures need to be considered in case that a REMP indicates that planned mining operations potentially conflict with other legitimate marine uses in the same region.

(vi) **ISA Decision-Making**. The Regulations could further clarify (building upon DR2(e) and (i)), how each organ of the ISA must take account of REMPs, and act consistently with REMPs, as it performs its functions under the Regulations. The Regulations could provide that ISA organs are prohibited from taking any action (or inaction) that would lead to a contravention of any specific environmental thresholds established in the REMP.

(vii) **Consistency with REMPs a requirement at contract application and renewal stage.** The Regulations could specify that unless and until the LTC is satisfied that an EIS and EMMP are prepared in accordance and consistently with the relevant REMP, the LTC cannot recommend approval of a Plan of Work to the Council. Further, the Regulations could stipulate that the LTC should not recommend approval where such approval would undermine or contradict the objectives or measures as determined in the applicable REMP. That would necessitate consideration of cumulative impacts and other marine users, which could be missed if an individual project application is reviewed in isolation. It should also require mandatory compliance with the terms of APEIs. The same considerations and criteria should be applied where an application for contract renewal is made.

(viii) **REMPs and EIS.** The Regulations could specify the types of 'objectives and measures' of a REMP, with which any EIS should 'be in accordance with', as is required by DR47(3)(c) [NB 'comply with' may be better terminology here]. This could be through reference to the REMP template (e.g. sections 3.3 and 3.4), or by descriptive headings, e.g.

i. Region-specific environmental goals;
ii. Regionally-appropriate management measures;
iii. Region-wide monitoring programmes;
iv. Regional limits on cumulative environmental impacts;
v. Facilitation of scientific research in the region.

(ix) **REMPs and Baselines**. Regulations could require a contractor to demonstrate that its baseline data studies are informed by, and are consistent with, those of any REMP in its vicinity and that those baseline studies are included in the regional database that will inform subsequent REMPs.

(x) **REMPs and EMMPs**. The EMMP format (Annex VII) could require the applicant to list the above 'objectives and measures' identified in the REMP (and provide any further detail as to the applicant's plan to implement these). This is important as contractors are required

by the Regulations and their contract to comply with the EMMPs. By including these aspects of the REMP in an individual project's EMMP, they become legally binding on the contractor. DR 52's requirement for contractors to conduct performance assessments of their EMMP, including its adequacy, could expressly require that its compliance with the REMP is assessed.

(xi) **Other Plans**. A provision could be added to require all plans and information comprising an application for a plan of work (and not just the EIS and EMMP) to be prepared in accordance with the relevant REMP. This would include the closure plan, emergency response plan, and training plan. This requirement could easily be inserted in DR7(3) 'form of applications for a Plan of Work'.

(xii) **REMP Updates and Plan of Work Amendments**. DR 51 places upon contractors an obligation of "*maintaining the currency and adequacy of the EMMP*", but this is not linked to REMPs or REMP review. DR 51 could be amended expressly to state that a contractor must review and update their Plan of Work, including its EMMP, whenever the relevant REMP is revised.

(xiii) **APEI Prohibitions.** Regulations could explicitly specify that no exploitation can take place within an APEI (e.g. by including APEIs under DR 15(2)'s list of benthic areas where the LTC cannot recommend approval for exploitation, and by prohibiting member States from conducting any seabed mineral activities in those areas). Contractors should also be prohibited from causing any harmful impacts to APEIs from their activities in other areas.

(xiv) **PRZs and IRZs**. Regulations could set parameters and rules for PRZs and IRZs.

(xv) **More Science**. REMPs need to be informed by scientific understanding of both contract areas and areas not covered by contracts (see the regional environmental assessments described in Strategic Direction 3.2 of the ISA's Strategic Plan 2019-2023). In order to avoid delays in collecting essential survey data, the ISA Regulations could require or incentivise contractors to contribute to large-scale regional assessments.

(xvi) **Marine Scientific Research Plan?** A new 'MSR plan' requirement at application stage could be introduced or incorporated in the Plan of Work programme of activities. This would ask applicants to set out actions they will take, including in collaboration with other contractors or via international cooperation efforts, to increase scientific knowledge in the relevant region, but outside of their contract area, and specifically including APEIs. This must meet the objectives of the relevant REMP, and be developed under proactive direction from the ISA, as the aim should be to assist ISA's governance of activities in the Area.

(xvii) **Other Marine Users.** DR31 could require contractors and ISA organs both to take account of, and feed information back in to, the relevant REMP in exercising their respective duties to have reasonable regard for other activities taking place in the same area.

F. CONCLUSION

16. In conclusion, there are a number of ways in which REMP status could be addressed by the ISA, including:

a. REMPs as ISA policy documents (with no binding force, but acting as guiding documents for ISA organs).
b. REMPs as ISA policy documents, and adopted by Council decisions to formalise specified aspects of the REMPs for the Council (e.g. when the REMP should be reviewed, preventing contract award within APEIs).
c. REMPs incorporated into Regulations such, that relevant processes and content are binding upon ISA organs, member States and Exploitation contractors (e.g. as proposed in section E above).
d. REMPs incorporated into a separate set of Regulations, such that relevant processes and content are binding upon ISA organs, member States, Exploration contractors and Exploitation contractors.
e. REMPs as a 'Rule, Regulation or Procedure' of the ISA, such that the REMP document itself has directly binding effect upon ISA organs, member States, Exploration contractors and Exploitation contractors.

17. If option c is preferred it needs to be considered what aspects mentioned in section E (above) need to be included in the Regulations.

18. The workshop may wish to consider these different options.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Umwelt Bundesamt

THE PEW CHARITABLE TRUSTS

Ministry of Infrastructure and Water Management

Supported by:

IASS POTSDAM

International Workshop

11 – 13 November 2019, Hamburg – Germany

Hosted by Germany
And
Co-organized with the Netherlands and Pew Charitable Trusts

Towards a standardised approach to Regional Environmental Management Plans in the Area

Agenda

Monday, 11 of November
(Day 1)

Official opening		
Time	**Item**	**Lead**
08.30 – 09.00	Registration	
09.00 – 09.10	Words of Welcome	Lilian Busse
09.15 – 09.20	Greetings – Objective of Workshop	Tom Kompier
Theme 1: Setting the Scene		
09.20 – 09.45	REMP in the context of Deep Seabed Mining Workshop Overview	Harald Ginzky
09.45 – 10.00	Plenary Discussion	
10.00 – 10.30	**Coffee Break and Group Photo**	
10.30 – 10.50	CCZ EMP: lessons learnt	Craig Smith
10.50 – 11.10	Update on ISA REMPs under development: (i) Mid Atlantic ridge (ii) Pacific Triangle	 Phil Weaver Malcolm Clark
11.10 – 11.20	Marine Regions Forum: Outcomes	Ingo Narberhaus
11.20 – 11.30	Plenary Discussion	
11.20 – 11.40	Guidance to facilitate the development of REMPs, by the ISA Secretariat	Wanfei Qiu
11.40 – 12.00	SEA/REA process & developing REMPs	Daniel Jones
12.00 – 12.45	Plenary Discussion	
12.45-13.45	**Lunch break**	
Theme 2: Objectives, Function and principles of REMP for Deep Seabed Mining		
13.45 - 14.15	Introductory talk on purposes, objectives, and principles – from the REMP template	Aline Jaeckel
14.15 - 15.00	Three parallel working groups	
15.00 - 15.20	Report to Plenary	
15.20-15.40	**Coffee break**	

Monday, 11 of November
(Day 1)

Theme 3: Contents of REMP		
Time	**Item**	**Lead**
15.40 – 16.10	REMPs as a tool to address cumulative effects and use conflicts amongst all legitimate uses – including remarks on other relevant regimes	Kristina Gjerde
16.10 – 17.10	Three parallel working groups	
17.10 – 17.30	Report to Plenary	
17.45 – 21.00	Visit of ITLOS	

Tuesday, 12 of November
(Day 2)

Theme 3: Contents of REMP (cont.)		
Time	**Item**	**Lead**
09.00 – 9.30	Technical and scientific Contents of REMP – what should be included - from REMP template	Sabine Gollner Sabine Christiansen
09.30 – 10.00	Spatial determinations in REMP – APEI, PRZ, IRZ and others – from the REMP template	Daniel Dunn
10.00 – 11.30	World Café Tables	
11.30-12.00	**Coffee break**	
Theme 4: Giving Effect to REMPs		
12.00 - 12.30	Report back to Plenary	
12.30 – 13.00	Relationship between REMPs and ISA Regulations and Plan of Work decisions	Hannah Lily
13.00 – 13.15	Plenary Discussion	
13.15 –14.15	**Lunch break**	
14.15 – 15.15	Small groups: how should REMPs be incorporated or aligned with other ISA instruments?	
15.15 – 15.45	Report to Plenary	
15.45 – 16.15	**Coffee Break**	
Theme 5: Procedure for Developing and Reviewing a REMP		
16.15 – 16.45	Introductory talk on procedural aspects for (a) development of a REMP, (b) approval and (c) review	Harald Ginzky Pradeep Singh
16.45 – 17.00	Plenary Discussion	
17.00 – 17.15	Data gathering and use: scientific needs	Cindy van Dover
17.15 - 17.30	Data gathering and use: contractor´s experience	Chris Williams
17.30 – 18.00	REMP Committee	Steven Vandenborre
18.00 – 18.15	Plenary Discussion	

Wednesday, 13 of November
(Day 3)

Theme 5: Procedure for Developing and Reviewing a REM P (cont.)		
Time	**Item**	**Lead**
09.00 – 10.30	World Café Tables	
10.30 – 11.00	**Coffee Break**	
11.00 – 11.30	Report back to Plenary	
11.30 – 12.30	Stakeholder participation and roles of scientific community, contractors and civil society – Panel	Diva Amon Duncan Currie Clement Mulalap Samantha Smith Bronwen Currie
12.30 – 13.00	Plenary Discussion	
12.30 – 13.30	**Lunch break**	
Theme 6: Concluding Session		
13.30 – 14.00	Summarising points discussed at the workshop, and next steps	Ingo Narberhaus
14.00 – 14.30	Discussion	
14.30 – 15.00	**Coffee break**	
15.00 – 16.00	Three parallel working groups: most important take away messages	
16.00 – 16.30	Report back to Plenary	
16.30 – 17.30	Concluding Session	Organising team

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

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International Expert Workshop: Towards a standardised approach to Regional Environmental Management Plans in the Area

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Annex VI - List of Abbreviations used

ABM	Area based Management
ABMT	Area-based Management Tool
ABNJ	Areas Beyond National Jurisdiction
APEI	Areas of Particular Environmental interest, ISA protection category
BBNJ	Biodiversity Beyond the limits of National Jurisdiction
BBNJ COP	Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction
BMU	German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
CBD	Convention on Biodiversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCZ	Clarion-Clipperton Zone, northeast Pacific
CSIRO	Commonwealth Scientific and Industrial Research Organization
DOSI	Deep Ocean Stewardship Initiative
EBA	Ecosystem Based Approach
EBSA	European Biophysical Societies' Association
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMMP	Environmental Management and Monitoring Plan, ISA contractor requirement
EMP	Environmental Management Plan
ESC	Extended Continental Shelf
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GIS	Geographic Information System

GSR	Global Sea Mineral Resources
IASS	Institute For Advanced Sustainability Studies
IMO	International Maritime Organization
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IRZ	Impact Reference Zone ESC
ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
LTC	Legal and Technical Commission of the ISA
MPA	Marine Protected Area
MSP	Marine Spatial Plan
MSR	Marine Scientific Research
NEAFC	North East Atlantic Fisheries Commission
NIOZ	Royal Netherlands Institute for Sea Research
OSPAR	The mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic
POC	Particulate Organic Carbon
PRZ	Preservation Reference Zone
PSSA	Particularly Sensitive Sea Areas
REA	Regional Environmental Assessment
REMP	Regional Environmental Management Plans
RFMO	Regional fisheries management organisation
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessment
SMART	Management objectives and targets to be: Specific, measurable, achievable, realistic, time-bound
SMS	Seafloor Massive Sulphide
UBA	German Environment Agency

UKSRL	UK Seabed Resources Limited
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organization
VME	Vulnerable Marine Ecosystems